

AD-A255 637



1

Federal Construction Contract Award

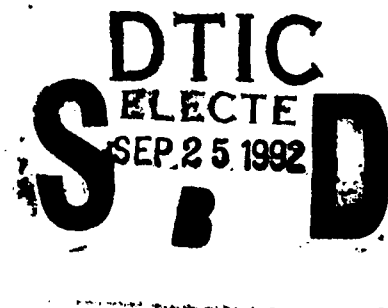
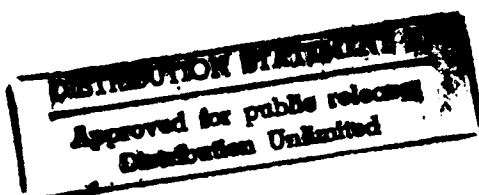
By Mean Bid

George Edwyn Taylor, II

Departmental Report

Presented to the Faculty of  
Construction Engineering and Project Management  
College of Civil Engineering  
The University of Texas at Austin  
in Partial Fulfillment  
of the Requirements  
for the Degree of  
Master of Science Civil Engineering

August 1992



Federal Construction Contract Award

By Mean Bid

N00123-89-G-0536

Approved by:

*John D. Borcharding*  
John D. Borcharding

*Richard L. Tucker*  
Richard L. Tucker

*James A. Broaddus*  
James A. Broaddus

|                      |                                     |
|----------------------|-------------------------------------|
| Accession For        |                                     |
| NTIS GRA&I           | <input checked="" type="checkbox"/> |
| DTIC TAB             | <input type="checkbox"/>            |
| Unannounced          | <input type="checkbox"/>            |
| Justification        |                                     |
| By <i>perform 50</i> |                                     |
| Distribution/        |                                     |
| Availability Codes   |                                     |
| Dist                 | Avail and/or Special                |
| <i>A-1</i>           |                                     |

DTIC QUALITY INSPECTED 3

92 9 24 008

92-25777 98



98

## **Table of Contents**

|   |           |
|---|-----------|
| <b>Chapter 1. Statement of Intent and Findings</b>  | <b>1</b>  |
| <b>Chapter 2. Introduction</b>                      | <b>3</b>  |
| <b>Chapter 3. Background</b>                        | <b>7</b>  |
| 3.1 Naval Facilities Engineering Command            | 7         |
| 3.2 The Military Construction Process               | 8         |
| 3.3 The Minor Construction Process                  | 10        |
| 3.4 Advertising, Bidding, and Contract Award        | 11        |
| <b>Chapter 4. Methodology of Research</b>           | <b>13</b> |
| 4.1 What to Measure                                 | 14        |
| 4.2 How to Measure                                  | 15        |
| 4.3 How to Analyze                                  | 16        |
| 4.4 How to Prove Worth                              | 16        |
| 4.5 Possible Disadvantages                          | 17        |
| <b>Chapter 5. Presentation and Analysis of Data</b> | <b>19</b> |
| 5.1 The Straight Average Method                     | 19        |
| 5.2 The High/Low Bids Excluded Method               | 22        |
| 5.3 The Government Estimate Range Method            | 24        |
| 5.4 Variation of Bids                               | 26        |
| <b>Chapter 6. Conclusions</b>                       | <b>28</b> |
| <b>Chapter 7. Recommendations for Further Study</b> | <b>30</b> |
| <b>References</b>                                   |           |
| <b>Appendix: Contract Data Tables</b>               |           |

## List of Figures

|             |  |    |
|-------------|--|----|
| Figure 5.1  | Average Bid vs. Final Price<br>(Bids: Up to \$100,000)<br>Straight Average Method                      | 20 |
| Figure 5.2  | Average Bid vs. Final Price<br>(Bids: \$100,000 to \$1,000,000)<br>Straight Average Method             | 21 |
| Figure 5.3  | Average Bid vs. Final Price<br>(Bids: \$1,000,000 to \$15,000,000)<br>Straight Average Method          | 21 |
| Figure 5.4  | Average Bid vs. Final Price<br>(Bids: Up to \$100,000)<br>High/Low Bids Excluded Method                | 22 |
| Figure 5.5  | Average Bid vs. Final Price<br>(Bids: \$100,000 to \$1,000,000)<br>High/Low Bids Excluded Method       | 23 |
| Figure 5.6  | Average Bid vs. Final Price<br>(Bids: \$1,000,000 to \$15,000,000)<br>High/Low Bids Excluded Method    | 23 |
| Figure 5.7  | Average Bid vs. Final Price<br>(Bids: Up to \$100,000)<br>Government Estimate Range Method             | 24 |
| Figure 5.8  | Average Bid vs. Final Price<br>(Bids: \$100,000 to \$1,000,000)<br>Government Estimate Range Method    | 25 |
| Figure 5.9  | Average Bid vs. Final Price<br>(Bids: \$1,000,000 to \$15,000,000)<br>Government Estimate Range Method | 25 |
| Figure 5.10 | Variation of Average Bid to Final Price<br>(Contracts: Final Price > Average Price)                    | 26 |
| Figure 5.11 | Variation of Average Bid to Final Price<br>(Contracts: Final Price < Average Price)                    | 27 |

## Chapter 1

### Statement of Intent and Findings

The intent of this research is to document the feasibility of awarding federal construction contracts based on mean bid as an alternative to low bid. In this case, mean bid award is derived by summing the values of all bids received for an advertised federal construction contract and determining the average value. This value is the benchmark by which all bids are compared--the contractor who bids closest to this benchmark is awarded the contract.

Using data from 55 Navy construction contracts collected from two Navy Engineering Field Divisions and one Navy Resident Officer in Charge of Construction office, a comparison of final contract price to the average of all bids received will be made. The premise for comparison is that mean bid award would ensure that a "sincere" bidder receives the contract, thus reducing the number of costly changes and improving project quality.

Three methods were used in this study to determine the mean bid for each of the 55 contracts: (1) straight average of all bids received, (2) average of all bids received excluding the high and low bids, and (3) average of all bids received that fall within a range of 70% to 130% of the Government estimate.

Each contract was reviewed independently to determine

the actual award amount. Modifications other than customer requested changes were added to the award amount to determine the final price of the project. This final price was then compared to the mean bid.

Using this comparison as the criteria of feasibility, federal construction contract award by mean bid is not supported within the specific context of this research because the majority of the contracts had final prices lower than the value of the average bid. However, as the Navy and the construction industry embrace the Total Quality Management philosophy, an alternate means of contract award such as mean bid should not be ruled out. Reasons for this conclusion will be developed in later chapters of this report.

## Chapter 2

### Introduction

Although not the norm, it is not uncommon in federal construction contracting to encounter a bid for a project that may be considered to be "insincere." An insincere bid may be defined as a very low bid offered for the purpose of obtaining the contract and seeking profit through excessive changes. If such a bidder is responsive and responsible, the Government is obligated to award the contract and then face the consequences of such an award.

Consider the following scenario: a contractor offers a bid on a Navy contract to rehab a Marine Corps Reserve Center that is remotely located from the Navy officer charged with administering the contract. The bid is lower than anticipated, but because the contractor has been found to be responsive and responsible and does not acknowledge any mistakes in the bid, the contract is awarded. Because the construction site is so remotely located, routine daily inspections by the Navy are not feasible and communications with the contractor are routinely only by telephone or letter. As the project progresses, the contractor initiates an excessive number of changes to the contract. The changes are priced extremely high in comparison to the initial bid for the project. Negotiations stall out and the Navy is forced to seek other means of accomplishing the work or to

accept changes that are priced dramatically higher than anticipated. The end result is a project that is completed late, at a price that is much higher than predicted, and lacks the desired quality.

Such a scenario might justify an alternative type of contract award. If the contract were awarded to a contractor who bid closest to the mean or average of the bids received for that contract, this type of inflammatory situation might be avoided. The rationale is that the contractor who bid closest to the mean of all bids received, bid the contract "sincerely" or accurately rather than as low as possible simply to obtain the contract. Such a contract may avoid the excessive changes that an insincere bidder would invoke as a means of obtaining some profit or costs that were not initially bid, and may further avoid the resulting degradation of the relationship between the owner and the contractor.

Other countries around the world have used this alternative form of contract award. A Presidential decree in the Philippines created a system where all bids are added to the client's estimate and then averaged. Any bidder whose price is less than 70% of the figure derived from this calculation is rejected. The client's estimate forms an upper limit. The successful bidder is the one closest to the benchmark derived from the averaging calculation. (Barrell 1988).

A similar system was established in 1974 in Italy for

public sector construction. This system was developed due to the extremely high level of competition and concern that it was fueling claims and disputes. According to the Italian contractors' association, Associazione Nazionale Costruttori Edili (ANCE), the average bid system was effective in bringing prices up to a realistic level and in addressing pressures to make claims which had resulted from unrealistically low bidder prices. (Barrell 1988).

As described by ANCE, bids are accepted within a range of -5% to -30% (variable by contract) of the estimate; outside that range the bids are rejected. Acceptable bids are averaged and the bidder nearest to the average is accepted. If there are two bids equally close to the estimate, one above and the other below, the higher bid is accepted. (This is apparently to further reduce the potential for claims that the unrealistically low bidder prices generated). (Barrell 1988).

Involvement in the European Economic Community spelled the end of the system in 1978. However, according to ANCE, the Italian Government is currently attempting to have the system reinstated in a case before the EEC Court in Brussels. Also according to ANCE, there are other European countries interested in implementing the system. (Barrell 1988).

An averaging system was also apparently in operation in Iran, prior to the fall of the Shah, by which the highest and lowest prices were rejected and the successful bidder chosen

on the basis of closest proximity to the average of the remaining prices. A mean bid system has been tried in the private sector in the United States, but has not received widespread use. (Data regarding this award system were not available at the time of this study). Although unconfirmed, there have also apparently been instances where a mean system has been tried in Australia. (Barrell 1988).

In other countries in which research was carried out, organizations and individuals expressed almost universal skepticism or opposition to mean bidding systems. The point was made repeatedly that there is no justification for selection other than the lowest bidder, if pre-qualification of bidders is used. The point was also made that public accountability makes it difficult, if not impossible, to move to such a system. It was questioned whether a mean system would result in a significant increase in prices, as bidders adjusted their prices to try to find the mean point. It was also questioned whether the system would result in the development of efficient methods of construction and design alternatives, as the incentive to do so would be lost. (Barrell 1988).

## Chapter 3

### Background

The data gathered for this research are from the United States Navy, one of the largest owners of facilities in the world. The Naval Facilities Engineering Command (NAVFAC) is responsible for the engineering, construction, operation and maintenance of these facilities.

#### 3.1 Naval Facilities Engineering Command (NAVFAC)

The mission of NAVFAC is to acquire and maintain all the Navy's shore facilities. Their \$300 billion world-wide physical plant includes operational facilities for submarines, surface ships, and aircraft, as well as all the base support for personnel, industrial activities, logistics, and communications. It logically follows that NAVFAC is engaged in virtually every type of construction, including industrial, commercial, heavy, and residential. Few owners can claim that they have this diversity among all their project work. (Broaddus 1991).

Although headquartered in Washington, DC, NAVFAC performs project conception, planning, procurement, construction and startup through seven regionally located Engineering Field Divisions (EFD's). Collectively, these EFD's are responsible for the Navy's facility construction and maintenance functions all over the world. Each EFD is assigned a geographic region of responsibility. All major

facility engineering and construction functions carried out at any of the Naval shore activities within a region fall under the jurisdiction of the assigned EFD.

The planning and design functions of a construction project are performed either in-house at the EFD or contracted out according to the workload and capabilities of the EFD. The construction functions are contracted out to private contractors through a formalized procurement process. The construction contract is administered by the EFD's field offices or Resident Officer in Charge of Construction (ROICC) which are located at most Navy shore activities. The ROICC is responsible for all aspects of contract administration including site inspection, submittal review, modifications, contractor payment verification, startup and turnover.

### 3.2 The Military Construction (MILCON) Program

Virtually all major capital improvements for the Navy are done through the MILCON Program, though all major construction is not exclusively restricted to that program. For example, normal operation and maintenance funds may be used for major repairs where facilities are being essentially replaced in kind or where major damages require immediate attention. Notwithstanding this exception, the bulk of the work, as well as the most complex and demanding projects, are in the MILCON Program.

The MILCON Program is funded annually by Congress as a

separate and distinct appropriation. Every Navy project over \$200,000 must be authorized and appropriated as a specific line item in an annual congressional budget. In brief, the process starts with requirements being identified at the local base level, or perhaps through addition of a new mission or weapons system requiring facilities at one or more selected locations. A project for construction is submitted up through the operational chain-of-command, with EFD assistance, to the Chief of Naval Operations. If it is validated and prioritized sufficiently, it will earn a spot within a five-year defense program.

When a project is within three years of its projected budget year, the planning process starts to further define the scope in preparation for design authorization. In some cases, "front end" planning studies are either conducted in-house or by architect-engineer (A-E) firms to further define the project. At approximately two years prior to the project funding year, the design of the project is officially authorized. At this time, an A-E firm is selected on the basis of qualifications, and a contract is negotiated to complete all plans and specifications for the project.

Once a project has reached the 35 percent design completion stage, it is ready to go into the Department of Defense and Presidential budgets for submission to Congress for hearings and eventual authorization and appropriation. Of course, many projects do not survive the entire budget

process. A project may be deferred to a later year by Defense Department budget analysts or eliminated completely by lack of support in one of four Congressional committees. Also, once the House and Senate Armed Services and Appropriations Committees joint recommendation becomes law, the authorization and appropriations bills come with a variety of "strings attached." These normally relate to the cost growth allowable and the maximum time in which the project must be started; however, there are no significant congressional constraints on project completion.

Even though the design completion reaches 35 percent and a project may be included in the President's budget, design activity normally continues while the budget considerations are under way. Frequently, by the time the Congressional budget is approved and funds apportioned, the design is complete and ready for advertising, bidding and award. As with any political process, projects are dropped and the authorization and appropriation bills are often late. Ideally, the Military Construction legislation is scheduled for passage prior to October 1st each year since that date serves as the start of the federal fiscal year. Once a bill becomes law, it is legal for the construction contract to be awarded for all or parts of the project. (Broadus 1991).

### 3.3 The Minor Construction Process

Commanding Officers of Navy shore activities are

authorized to spend up to \$200,000 for individual minor construction and repair contracts without Congressional approval. The process through which these projects are executed is much simpler than that of the MILCON Program. Specifically, the Commanding Officer decides which projects have priority, and those projects are funded up to the limit the activity's annual minor construction budget. The activity's local Public Works Center or department (depending on the size and location of the Navy shore activity) develops the conceptual planning for the project. Detailed engineering and design is performed either in-house or contracted out. After plans and specifications are completed, the project is ready for advertising, bidding and award. The EFD does not generally get involved in these station contracts; however it is available for guidance, if necessary.

#### **3.4 Advertising, Bidding and Contract Award**

Whether funded through the MILCON Program or funded as a station contract, once the plans and specifications for a project are completed and approved, the project is ready for advertising, bidding and award. These functions are generally carried out by the local contracts office at the Navy shore activity where the project is to be constructed.

In brief, the project is advertised for thirty days in the Commerce Business Daily, a monthly publication that lists

federal construction projects open for bidding. Private contractors submit sealed bids to the local contracts office through which the contract will be awarded. At the specified date and time, all sealed bids are opened and reviewed. The lowest bidder that is found to be responsive and responsible is awarded the construction contract. The ROICC is notified of the contract award and establishes a date and time to conduct a pre-construction briefing with the contractor and user of the facility.

The ROICC administers the construction contract through completion of the facility, ensures contract compliance and conducts turnover to the user.

## Chapter 4

### Methodology

In 1988 the Department of Defense and the Navy began its drive to embrace a new strategy of leadership called Total Quality Management (TQM) or Total Quality Leadership (TQL). The key elements to this management philosophy, are:

- There must be continuous improvement in all aspects of an organization.

- This improvement is the responsibility of all members of the organization.

- Data, statistical methods, and careful analysis are essential to gain the improvement.

- Ultimately, the customer determines the quality of both products and services.

The focus of TQM is on work processes--those repetitive steps that start with an input from a supplier and end with a product or service delivered to a customer. From this macro perspective, the suppliers and the customers are outside the organization. But within the macroprocesses are dozens and sometimes thousands of microprocesses that exist solely inside the organization. Both the supplier and the customer reside in other parts of the same organization. (Mumford 1991).

Dr. W. Edwards Deming, internationally renowned for his expertise in TQM, developed his Fourteen Points to guide

organizations as they implement total quality programs for the continuous improvement of operations, service quality and productivity. Dr. Deming's fourth point is "end the practice of awarding business on the basis of price tag alone" which usually leads to low service quality and predictable cost overruns. His recommendation is to shift the emphasis away from seeking the lowest bidder and to seek and initiate alternative means of procurement. Mean bid contract award potentially represents a vehicle for adopting this change.

#### 4.1 What to Measure

To conduct this study, it is necessary to compare the final price of a construction contract awarded by low bid to the average of all bids received for that project. This comparison will provide a means to evaluate the feasibility of awarding construction contracts by mean bid versus low bid. For the purposes of this research, the final price of a contract is the award price plus all additive and deductive changes, excluding customer requested changes. Customer requested changes are not considered because it is assumed that they are completely beyond the control of the contractor and represent changes in scope from the project as originally advertised and bid.

The rationale behind the comparison is that contracts awarded by low bid are fertile ground for the contractor who submitted an "insincere" bid to seek changes and drive up

costs. Conversely, a mean bid system should award contracts only to "sincere" bidders, lessening the chances for excessive changes. By comparing the final price to the average of all bids received, it is possible to see if it is economically feasible to award by mean bid.

#### 4.2 How to Measure

To conduct the comparison of final price to the average of all bids received, contract data were gathered from 55 Navy construction contracts. To ensure diversity, the data were gathered from a variety of sources: 30 contracts from the ROICC office at Naval Air Station Memphis, TN; 17 contracts from the EFD located in Charleston, SC (Southern Division, Naval Facilities Engineering Command); and 8 contracts from the EFD located in Philadelphia, PA (Northern Division, Naval Facilities Engineering Command). The value of the contracts varied in price from \$25,000 to \$15 million. Both the Military Construction (MILCON) Process and the Minor Construction Process are represented.

For each contract, the scale of offers indicating all bids received was collected, the Government estimate was determined, the award price (low bid) was identified, all change order data were carefully reviewed, and the final price was calculated. One shortcoming of the data collection is that the final prices of the contracts don't include costs incurred due to claims because such data were not available.

### 4.3 How to Analyze

Three methods of determining the mean bid were used in the analysis of the data. The first method was to simply determine the arithmetic average of all bids received for each contract. This method reflects the average of all bids regardless of the magnitudes of the bids.

The second method was to determine the arithmetic average of all bids excluding the high and low bids. This method refines the mean or benchmark value by excluding any stray bids that may contain errors thus pulling the average away from a realistic value.

The third method was to determine the arithmetic average of all bids falling within a range of 70% to 130% of the Government estimate. This method ensures that all bids are in line with the predicted cost of the contract. The shortcoming of this approach is that it assumes the Government estimate is accurate which is not always the case.

### 4.4 How to Prove Worth

Proving the worth of the analysis of the research is based on the following premise:

- (1) If the final price of the contract is HIGHER than the average of the bids received, an award based on mean bid IS supported.

(The assumption is that the mean bid award amount will be closer in value to the final price due to less changes, fewer

claims, and higher quality. i.e. BID = FINAL PRICE).

- (2) If the final price of the contract is LOWER than the average of the bids received, an award based on mean bid is NOT supported.

(The assumption is that even with changes, claims, etc., awarding the contract by low bid results in a final price that is lower than the average bid).

A strict interpretation of this method of analysis would mean that if the final prices of the contracts are higher than the average bids, it would be wise to award by mean bid. Conversely, if the final prices of the contracts are lower than the average bid, it would not be wise to award by such a method. However, as will be discussed in the conclusion of this report, such strict interpretation of these results may preclude the use of a potentially useful means of contract award.

#### 4.5 Possible Disadvantages

It can be argued that certain inherent disadvantages exist in the mean bid system. Full consideration must be given to these disadvantages prior to the implementation of such a system.

Disadvantage #1: Mean bid award may remove contractor incentive to develop more efficient construction methods. If a contractor is trying to develop a bid which will be awarded based on the average of all bids received, that contractor

would not be inclined to submit a bid based on an alternate, more efficient means of constructing the project. Rather than look for means to lower the bid which could potentially save the owner money, the contractor may only bid the project strictly as designed. Also, the contractor's incentive to make more profit by using a more efficient technique may be jeopardized.

Disadvantage #2: Mean bid award may simply start the project from a higher plateau from which to add costs. The phrase: "There's no such thing as a perfect set of plans and specs," is commonly heard in the construction industry. Consequently, even if the contractor bids sincerely on the project, it is likely that there will be some modifications to the contract. If the contract is awarded on mean bid, then the final price of the project may simply grow to higher proportions than if the contract were awarded by low bid. This fact alone could make the use of the mean bid award system in the public sector very difficult to justify.

Disadvantage #3: The mean bid award system may induce bidder collusion. It is possible that a group of contractors may collude with each other to determine where the average bid will lie. This type of collusion would probably be very rare.

## **Chapter 5**

### **Presentation and Analysis of Data**

The comparison of the final price of a construction contract to the average of all the bids received represents the heart of this research. The 55 Navy construction contracts studied represent a wide variety of contracts and should therefore be an adequate cross-section of federal construction contracting. As described in Chapter 4, the comparison was made using three approaches: (1) the Straight Average Method, (2) the High/Low Bids Excluded Method, and (3) the Government Estimate Range Method. The results of these approaches will be presented and analyzed below. Appendix A contains 55 data tables showing the pertinent data for each of the contracts and the tabular results of each of the three methods of analysis.

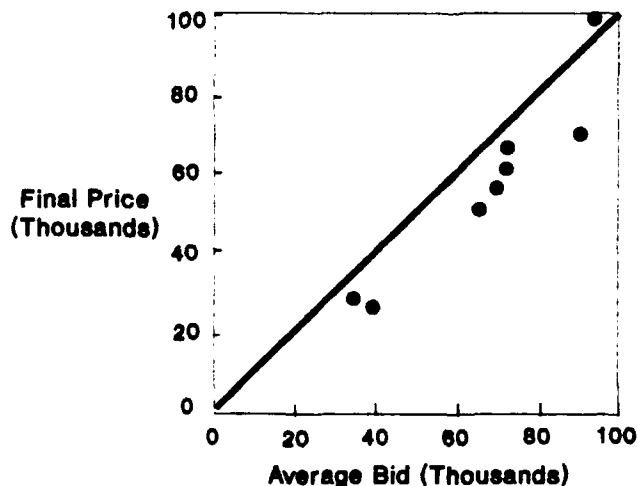
#### **5.1 The Straight Average Method**

This approach involved determining the average bid value based on all bids received regardless of magnitude of the bids. Of the 55 contracts studied, only eight contracts support the mean bid technique. This is graphically portrayed in the following three graphs. Figure 5.1 shows those contracts whose bids ranged in value up to \$100,000; Figure 5.2 shows those contracts whose bids ranged in value from \$100,000 to \$1,000,000; and Figure 5.3 shows those

contracts whose bids ranged in value from \$1,000,000 to \$15,000,000.

The X-axis of the graphs represents the average bid and the Y-axis represents contract final price. The solid diagonal line through the graph represents the function,  $Y=X$ , or Final Price is equal to Average Bid. All data points above the line represent contracts whose final price is higher than the average bid (mean bid system IS supported). All data points below the line represent contracts whose final price is lower than the average bid (mean bid system NOT supported). This graphing technique is consistent through all three methods of analysis.

### Average Bid vs. Final Price (Bids: Up to \$100,000)

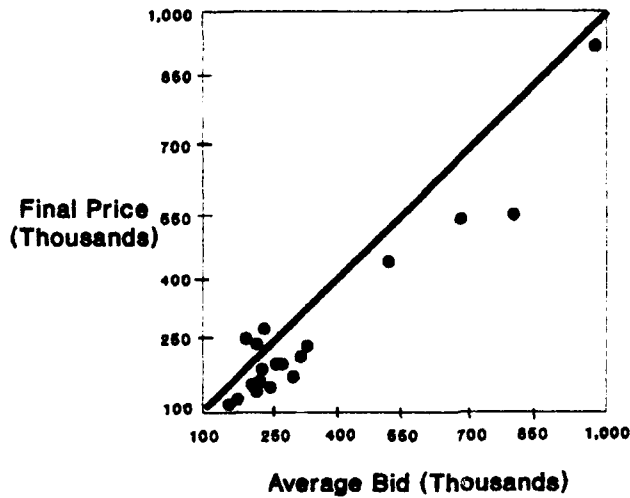


Straight Average Method

Figure 5.1

## Average Bid vs. Final Price

(Bids: \$100,000 to \$1,000,000)

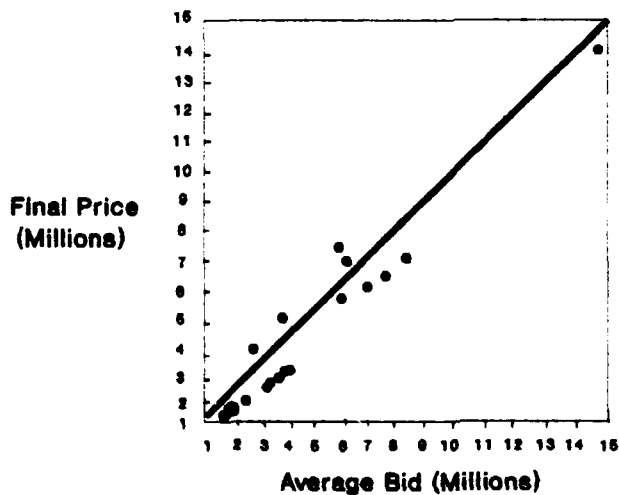


Straight Average Method

Figure 5.2

## Average Bid vs. Final Price

(Bids: \$1,000,000 to \$15,000,000)



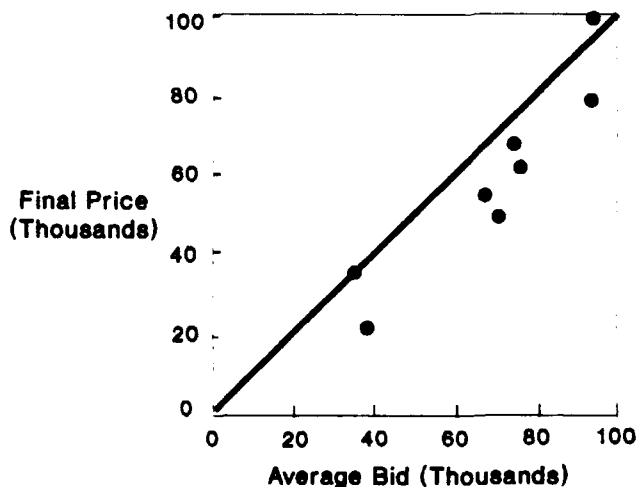
Straight Average Method

Figure 5.3

## 5.2 The High/Low Bids Excluded Method

This approach involved determining the average bid value excluding the highest and lowest bids. This refines the average in case there is a stray bid which is uncharacteristically high or low. Of the 55 contracts studied, only eight contracts support the mean bid technique. This is graphically portrayed in the following three graphs. Figure 5.4 shows those contracts whose bids ranged in value up to \$100,000; Figure 5.5 shows those contracts whose bids ranged in value from \$100,000 to \$1,000,000; and Figure 5.6 shows those contracts whose bids ranged in value from \$1,000,000 to \$15,000,000.

### Average Bid vs. Final Price (Bids: Up to \$100,000)

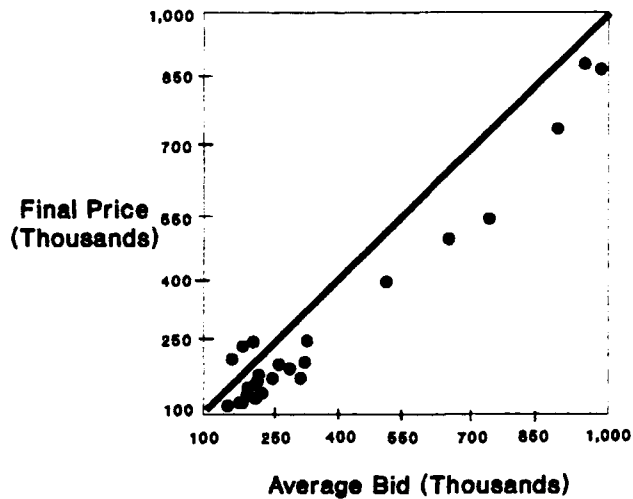


High/Low Bids Excluded Method

Figure 5.4

## Average Bid vs. Final Price

(Bids: \$100,000 to \$1,000,000)

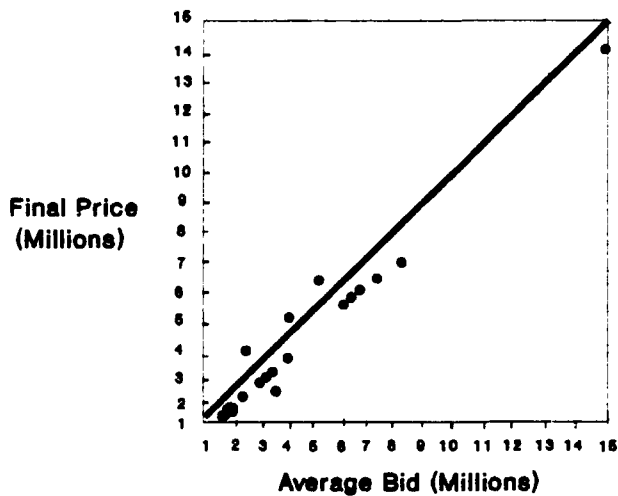


High/Low Bids Excluded Method

Figure 5.5

## Average Bid vs. Final Price

(Bids: \$1,000,000 to \$15,000,000)



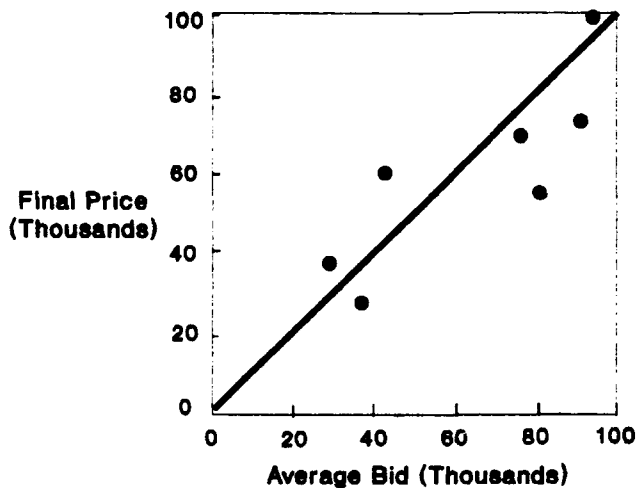
High/Low Bids Excluded Method

Figure 5.6

### 5.3 The Government Estimate Range Method

This approach involved determining the average of those bids within a range of 70% to 130% of the Government estimate. This further refines the mean to a predictable value. Of the 55 contracts studied, eleven contracts support the mean bid technique. This is graphically portrayed in the following three graphs. Figure 5.7 shows those contracts whose bids ranged in value up to \$100,000; Figure 5.8 shows those contracts whose bids ranged in value from \$100,000 to \$1,000,000; and Figure 5.9 shows those contracts whose bids ranged in value from \$1,000,000 to \$15,000,000.

#### Average Bid vs. Final Price (Bids: Up to \$100,000)

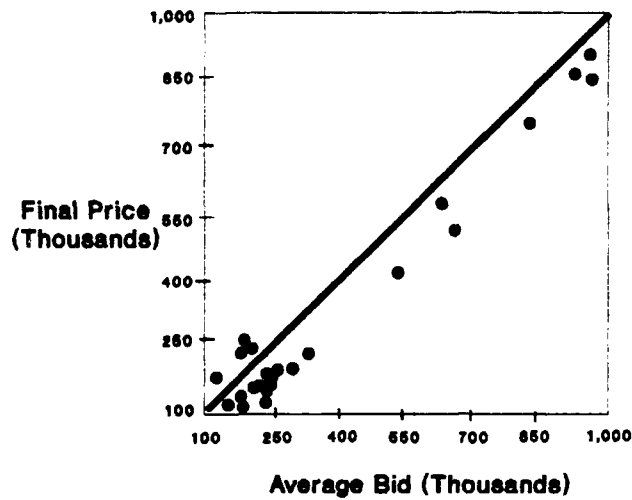


Government Estimate Range Method

Figure 5.7

## Average Bid vs. Final Price

(Bids: \$100,000 to \$1,000,000)

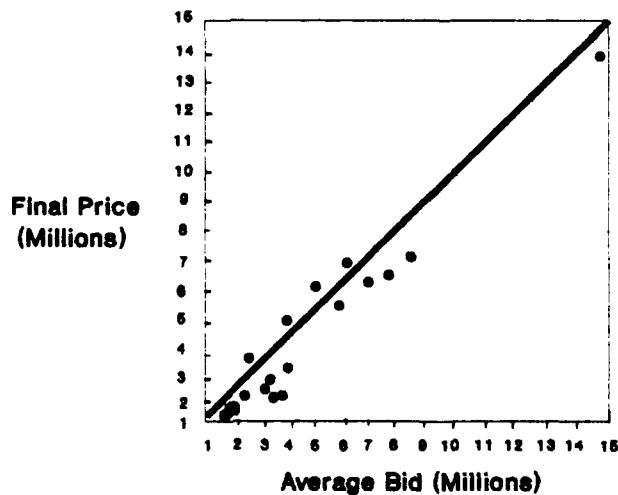


Government Estimate Range Method

Figure 5.8

## Average Bid vs. Final Price

(Bids: \$1,000,000 to \$15,000,000)



Government Estimate Range Method

Figure 5.9

#### 5.4 Variation of Bids

After making the comparison and graphically showing how many contracts strictly support the premise of this research, it is important to determine how close in value the final prices of the contracts were to the average bids. Figure 5.10 portrays how the contracts supporting the mean bid system broke out in relation to their proximity of the final price to the mean bid. All three different methods of determining the mean bid value had similar results: the majority of the contracts' final price was within 1% to 20% of the average bid. Only five contracts fell outside this range.

**Variation of Average Bid to Final Price**  
**Contracts: Final Price > Average Bid**

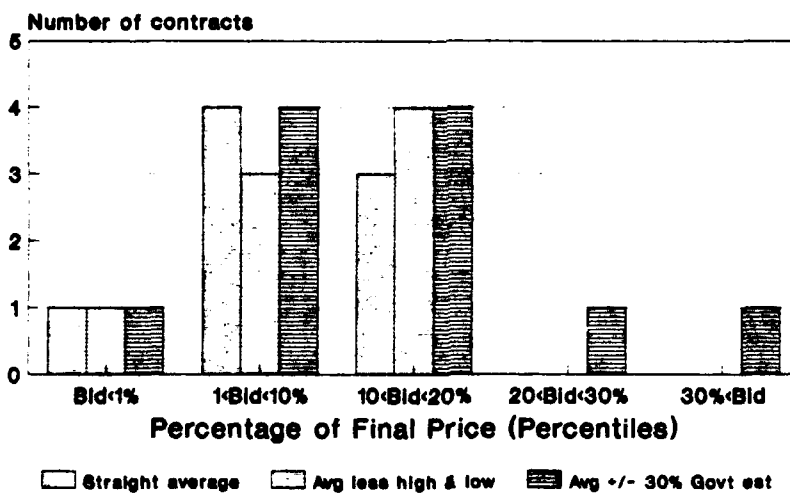


Figure 5.10

Similar results were found of those contracts that don't support the mean bid system: approximately one half of the contracts' final price was within 1% to 20% of the average bid. The majority of the remaining contracts had a final price between 20% and 60% of the average bid. Figure 5.11 indicates these results.

### Variation of Average Bid to Final Price Contracts: Final Price < Average Bid

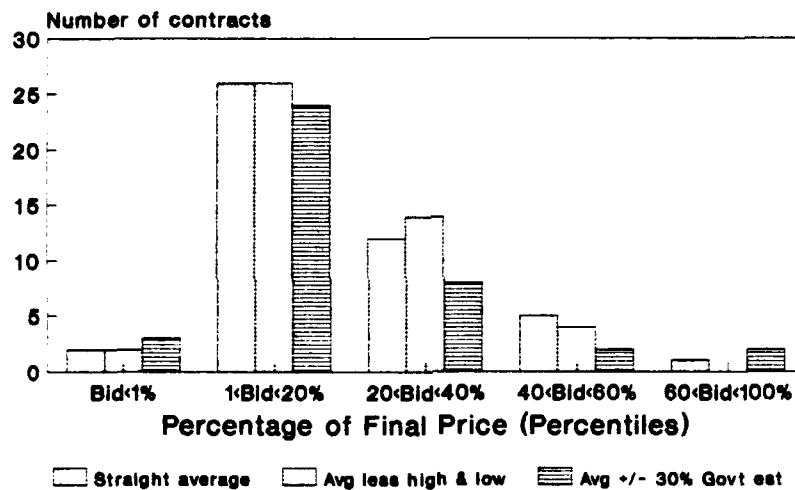


Figure 5.11

## Chapter 6

### Conclusions

The conclusions that can be drawn from this research are twofold. On the one hand, there are those conclusions which can be made based on a strict interpretation of the data. On the other hand, there are conclusions which may be drawn from a less rigorous interpretation of the data.

Strictly speaking, the results of the analysis of the data presented do not support a mean bid system. Of the 55 contracts, only eight contracts support a mean bid system under the Straight Average Method; only eight contracts support a mean bid system under the High/Low Bids Excluded Method; and eleven contracts support a mean bid system under the Government Estimate Range Method. Of those contracts in support, the majority of them had final prices within 20% of the average bid. This is not a tremendous savings considering that there will still be some change orders to add to the final price even under a mean bid system.

A less rigorous interpretation of the data may yield more support to a mean bid system. This research effort did not address some of the follow-on costs to the construction phase: claims and dispute resolution costs (if any), repair and warranty costs, and operations and maintenance costs. The final price of the 55 contracts was based only on the award price plus additive and deductive change orders

(excluding customer requested changes and scope changes). A more accurate final price to compare to the average bid would include some of these additional follow-on costs. Conducting a similar study with these data available to determine the final price could produce results in favor of a mean bid system.

The Total Quality Management philosophy which the Department of Defense and the Navy are diligently working to adopt stresses that business contracts should not be awarded on the basis of lowest price. In the public sector, this is a difficult idea to implement. As custodians of public funds, public officials and military leaders have the responsibility of obtaining the highest quality product at the lowest possible price--in other words, not wasting the public's money. However, the fundamental goal of TQM is to provide a better product that completely satisfies the customer. This means not only meeting initial costs goals, but also providing a facility that is easy to operate and maintain. Construction projects are complex by their nature; they are expensive and time consuming. Adopting TQM is a means of ensuring that projects produce high quality facilities that satisfy the customer. Using an award system similar to mean bid can put the federal Government one step closer to successfully implementing TQM.

## Chapter 7

### Recommendations for Further Study

This research effort could not address some of the follow-on costs to the construction phase of a project: claims and dispute resolution costs, repair and warranty costs, and operations and maintenance costs. Such data are critical to conduct the large scope research necessary to make the decision to implement a mean bid award system.

The current low bid award system has certain inherent shortcomings that do not agree with Total Quality Management philosophy. But before this system can be retired, an award system that fully meets the needs of the public and the federal Government must be determined. Whether such a system is based on mean bid, negotiated procurement, etc., is yet to be seen.

It is recommended that a large scale research effort that has access to all follow-on costs be executed in order to help determine an alternative to low bid award. However, it may take years to conduct such a study due to the data's complexity, especially if it's tied up in litigation.

## References

- Barrell, T., et al. 1988. Strategies for the Reduction of Claims and Disputes in the Construction Industry. Australian Construction Services, Department of Administrative Services.
- Broadus, J. A. 1991. Design Effectiveness in Construction: The Relationship Between the Inputs to the Design Process and Project Success. Ph.D. Dissertation to University of Texas, Austin, Texas.
- Mumford, R. E. 1991. "The 'Navy Way' Can Change." Proceedings Naval Review. Vol. 117/5/1/1,059. pp. 110-113. Naval Institute. Annapolis, MD.

**Appendix**  
**Contract Data Tables**

|                  |                   |                      |                                      |
|------------------|-------------------|----------------------|--------------------------------------|
| Contract Number: | N62467-90-4543    | Project Title:       | Exterior Painting for Wherry Housing |
| Contract Source: | ROICC NAS Memphis | Government Estimate: | 200,000                              |
| Filename:        | MFS1              |                      |                                      |

|                         |                               |                                  |                      |
|-------------------------|-------------------------------|----------------------------------|----------------------|
| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
| Avg Bid: 267,799        | Avg Bid: 256,715              | Avg Bid: 211,763                 | Tot. Cost: 168,300   |

|                          |                          |                          |                |                     |
|--------------------------|--------------------------|--------------------------|----------------|---------------------|
| Median Bid Not Supported | Median Bid Not Supported | Median Bid Not Supported | Award: 168,300 | Changes: No Changes |
| Bids:                    | Bids:                    | Bids:                    |                |                     |
| 433,880                  | 361,000                  | 238,000                  |                |                     |
| 361,000                  | 288,777                  | 232,065                  |                |                     |
| 288,777                  | 238,000                  | 212,142                  |                |                     |
| 238,000                  | 232,065                  | 208,307                  |                |                     |
| 232,065                  | 212,142                  | 168,300                  |                |                     |
| 212,142                  | 208,307                  |                          |                |                     |
| 208,307                  |                          |                          |                |                     |
| 168,300                  |                          |                          |                |                     |

|                  |                   |                      |                     |
|------------------|-------------------|----------------------|---------------------|
| Contract Number: | N62467-85-C-0716  | Project Title:       | Barracks "A" School |
| Contract Source: | ROICC NAS Memphis | Government Estimate: | 8,300,000           |
| Filename:        | MFS2              |                      |                     |

| Straight Average Method    | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price        |
|----------------------------|-------------------------------|----------------------------------|-----------------------------|
| <b>Avg. Bid:</b> 8,417,875 | <b>Avg. Bid:</b> 8,393,839    | <b>Avg. Bid:</b> 8,417,875       | <b>Tot. Cost:</b> 8,081,200 |

|                          |                          |                          |          |           |
|--------------------------|--------------------------|--------------------------|----------|-----------|
| Median Bid Not Supported | Median Bid Not Supported | Median Bid Not Supported | Award:   | 8,025,000 |
| Bids:                    | Bids:                    | Bids:                    | Changes: |           |
| 8,979,000                | 8,692,000                | 8,979,000                | P00002   | (7,920)   |
| 8,692,000                | 8,675,187                | 8,692,000                | P00003   | 6,581     |
| 8,675,187                | 8,599,227                | 8,675,187                | P00004   | 2,818     |
| 8,599,227                | 8,366,000                | 8,599,227                | P00005   | 10,233    |
| 8,366,000                | 8,168,284                | 8,366,000                | P00007   | (11,892)  |
| 8,168,284                | 8,160,174                | 8,168,284                | P00008   | 3,456     |
| 8,160,174                | 8,096,000                | 8,160,174                | P00009   | 55,616    |
| 8,096,000                | 8,025,000                | 8,096,000                | P00010   | 10,119    |
| 8,025,000                |                          | 8,025,000                | P00011   | (23,172)  |
|                          |                          |                          | P00012   | 12,209    |
|                          |                          |                          | P00013   | 3,307     |
|                          |                          |                          | P00014   | (5,155)   |

Contract Number: N62467-87-C-0550 Project Title: Chief Petty Officers' Club

Contract Source: ROICC NAS Memphis Government Estimate: 1,706,800

Filename: MFS3

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 2,073,783        | Avg. Bid: 2,075,138              | Avg. Bid: 2,073,783                 | Tot. Cost: 1,953,073    |

Median Bid Not Supported

Bids: 2,203,706  
2,148,300  
2,001,975  
1,941,150

Median Bid Not Supported

Bids: 2,148,300  
2,001,975

Median Bid Not Supported

Bids: 2,203,706  
2,148,300  
2,001,975  
1,941,150

Award: 1,941,150

Changes:

P00001 3,000  
P00002 4,214  
P00003 1,734  
P00004 890  
P00005 989  
P00006 1,096

|                  |                   |                      |                             |
|------------------|-------------------|----------------------|-----------------------------|
| Contract Number: | N62467-83-C-0762  | Project Title:       | Aircraft Maintenance Hangar |
| Contract Source: | ROICC NAS Memphis | Government Estimate: | 4,250,000                   |
| Filename:        | MFS4              |                      |                             |

|                         |                               |                                  |                      |
|-------------------------|-------------------------------|----------------------------------|----------------------|
| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
| Avg. Bid: 3,746,681     | Avg. Bid: 3,726,418           | Avg. Bid: 3,746,681              | Tot. Cost: 3,484,135 |

|                          |                          |          |           |
|--------------------------|--------------------------|----------|-----------|
| Median Bid Not Supported | Median Bid Not Supported | Award:   | 3,452,078 |
| Bids:                    | Bids:                    | Changes: |           |
| 4,142,600                | 3,969,000                | P00001   | 11,015    |
| 3,969,000                | 3,783,626                | P00003   | 12,332    |
| 3,783,626                | 3,775,000                | P00004   | 1,050     |
| 3,775,000                | 3,595,000                | P00006   | 4,428     |
| 3,595,000                | 3,509,463                | P00007   | 3,232     |
| 3,509,463                | 3,452,078                |          |           |
| 3,452,078                |                          |          |           |

Contract Number: N62467-82-C-0481 Project Title: Applied Instruction Building

Contract Source: ROICC NAS Memphis Government Estimate: 940,000

Filename: MFSS

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 1,049,644        | Avg. Bid: 1,050,702              | Avg. Bid: 1,049,644                 | Tot. Cost: 931,751      |
| Median Bid Not Supported   | Median Bid Not Supported         | Median Bid Not Supported            | Award: 919,000          |
| Bids:                      | Bids:                            | Bids:                               | Changes:                |
| 1,175,000                  | 1,099,900                        | 1,175,000                           | P00001 4,000            |
| 1,099,900                  | 1,075,757                        | 1,099,900                           | P00002 867              |
| 1,075,757                  | 1,065,189                        | 1,075,757                           | P00003 1,740            |
| 1,065,189                  | 1,045,786                        | 1,065,189                           | P00004 776              |
| 1,045,786                  | 966,878                          | 1,045,786                           | P00006 3,908            |
| 966,878                    |                                  | 966,878                             | P00007 1,460            |
| 919,000                    |                                  | 919,000                             |                         |

Contract Number: N62467-86-C-4669 Project Title: Install Chain Link Fence at Turnkey Housing

Contract Source: ROICC NAS Memphis Government Estimate: 89,400

Filename: MPS6

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 64,386           | Avg. Bid: 67,383                 | Avg. Bid: 78,392                    | Tot. Cost: 52,400       |

Median Bid Not Supported

Bids: 88,793 88,793  
83,622 83,622  
71,319 71,319  
69,835 69,835  
59,740 59,740  
52,400 52,400  
24,990

Award: 52,400

Changes: No Changes

Contract Number: N62467-86-C-4699      Project Title: Replace Kitchen Cabinets in Conway Housing

Contract Source: ROICC NAS Memphis      Government Estimate: 237,000

Filename: MFS7

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 145,805          | Avg. Bid: 143,657                | Avg. Bid: 193,609                   | Tot. Cost: 107,300      |

| Median Bid Not Supported | Median Bid Not Supported |
|--------------------------|--------------------------|
| Bids:                    | Award: 107,300           |
| 224,492                  | Changes: No Changes      |
| 187,250                  |                          |
| 169,085                  |                          |
| 152,304                  |                          |
| 149,499                  |                          |
| 140,867                  |                          |
| 136,731                  |                          |
| 129,950                  |                          |
| 129,520                  |                          |
| 122,285                  |                          |
| 119,076                  |                          |
| 88,600                   |                          |

Contract Number: N62467-87-C-0147 Project Title: Arts/Crafts Hobby Shop

Contract Source: ROICC NAS Memphis Government Estimate: 1,406,600

Filename: MFS8

| Straight Average Method                   | High/Low Bids Excluded Method | Government Estimate Range Method          | Contract Final Price  |
|---|-------------------------------|---|---|
| Avg. Bid: 1,671,437                       | Avg. Bid: 1,664,876           | Avg. Bid: 1,671,437                       | Tot. Cost: 1,636,794  |
| Median Bid Not Supported                  | Median Bid Not Supported      | Median Bid Not Supported                  | Award: 1,623,888  |
| Bids: 1,725,547<br>1,664,876<br>1,623,888 | Bids: 1,664,876               | Bids: 1,725,547<br>1,664,876<br>1,623,888 | Changes: P00001 2,249<br>P00002 1,524<br>P00004 (586)<br>P00005 328<br>P00006 357<br>P00007 6,197<br>P00009 435<br>P00010 2,402 |

Contract Number: N62467-87-C-4626 Project Title: Storm Doors and Windows for Conway Housing

Contract Source: ROICC NAS Memphis Government Estimate: 166,000

Filename: MFS9

| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
|-------------------------|-------------------------------|----------------------------------|----------------------|
| Avg Bid: 115,705        | Avg Bid: 114,715              | Avg Bid: 149,436                 | Tot Cost: 75,995     |

Median Bid Not Supported

Median Bid Not Supported

Median Bid Not Supported

Award: 75,995

Changes: No Changes

| Bids:   | Bids:   | Bids:   |
|---------|---------|---------|
| 182,144 | 176,000 | 182,144 |
| 176,000 | 158,577 | 176,000 |
| 158,577 | 156,831 | 158,577 |
| 156,831 | 144,356 | 156,831 |
| 144,356 | 141,000 | 144,356 |
| 141,000 | 138,000 | 141,000 |
| 138,000 | 137,507 | 138,000 |
| 137,507 | 137,440 | 137,507 |
| 137,440 | 122,500 | 137,440 |
| 122,500 | 115,300 | 122,500 |
| 115,300 | 115,267 |         |
| 115,267 | 96,246  |         |
| 96,246  | 95,474  |         |
| 95,474  | 94,660  |         |
| 94,660  | 92,751  |         |
| 92,751  | 89,950  |         |
| 89,950  | 87,005  |         |
| 87,005  | 85,792  |         |
| 85,792  | 85,792  |         |
| 85,792  | 79,250  |         |
| 79,250  | 96,833  |         |
| 96,833  |         |         |

|                  |                   |                      |                                  |
|------------------|-------------------|----------------------|----------------------------------|
| Contract Number: | N62467-87-C-4631  | Project Title:       | C-Section Room at Naval Hospital |
| Contract Source: | ROICC NAS Memphis | Government Estimate: | 155,000                          |
| Filename:        | MFS10             |                      |                                  |

|                         |                               |                                  |                      |
|-------------------------|-------------------------------|----------------------------------|----------------------|
| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
| Avg. Bid: 177,599       | Avg. Bid: 168,000             | Avg. Bid: 158,638                | Tot. Cost: 149,275   |

|                                     |                          |                          |                |                     |
|-------------------------------------|--------------------------|--------------------------|----------------|---------------------|
| Median Bid Not Supported            | Median Bid Not Supported | Median Bid Not Supported | Award: 149,275 | Changes: No Changes |
| Bids: 215,523<br>168,000<br>149,275 | Bids: 168,000            | Bids: 168,000<br>149,275 |                |                     |

Contract Number: ROICC NAS Memphis      Project Title: Sidewalks, Gutters and Stormdrains for Conway Housing

Contract Source: ROICC NAS Memphis      Government Estimate: 195,000

Filename: MFS11

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 194,948          | Avg. Bid: 194,544                | Avg. Bid: 194,544                   | Tot. Cost: 157,702      |

Median Bid Not Supported      Median Bid Not Supported      Award: 157,702      Changes: No Changes

| Bids:   | Bids:   | Bids:   |
|---------|---------|---------|
| 259,046 | 244,217 | 244,217 |
| 244,217 | 213,870 | 213,870 |
| 213,870 | 212,000 | 212,000 |
| 212,000 | 199,066 | 199,066 |
| 199,066 | 194,875 | 194,875 |
| 194,875 | 186,332 | 186,332 |
| 186,332 | 173,082 | 173,082 |
| 173,082 | 169,750 | 169,750 |
| 169,750 | 157,702 | 157,702 |
| 157,702 |         |         |
| 134,491 |         |         |

Contract Number: N62467-87-C-4657 Project Title: Repair Pool Apron and Entrances, Bldg N-79

Contract Source: ROICC NAS Memphis Government Estimate: 110,000

Filename: MFS12

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 167,763          | Avg. Bid: 166,959                | Avg. Bid: ----                      | Tot. Cost: 166,061      |

Median Bid Not Supported

Bids: 175,000  
167,378  
166,540  
162,135

Median Bid Not Supported

Bids: 167,378  
166,540

Award: 162,135

Bids: All bids outside  
of range.

Changes:

P00002 3,926

Contract Number: N62467-88-C-4531      Project Title: Alterations/Repairs to Bldg 769

Contract Source: ROICC NAS Memphis      Government Estimate: 213,000

Filename: MFS13

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 204,467          | Avg. Bid: 192,331                | Avg. Bid: 192,331                   | Tot. Cost: 142,119      |

Median Bid Not Supported

Bids: 339,632  
239,000  
198,769  
193,449  
175,858  
174,950  
171,962  
142,119

Median Bid Not Supported

Bids: 239,000  
198,769  
193,449  
175,858  
174,950  
171,962

Median Bid Not Supported

Bids: 239,000  
198,769  
193,449  
175,858  
174,950  
171,962

Award: 142,119

Changes: No Changes

|                  |                   |                      |                              |
|------------------|-------------------|----------------------|------------------------------|
| Contract Number: | N62467-87-C-4684  | Project Title:       | Alterations/Repairs to S-238 |
| Contract Source: | ROICC NAS Memphis | Government Estimate: | 251,400                      |
| Filename:        | MFS14             |                      |                              |

|                         |                               |                                  |                      |
|-------------------------|-------------------------------|----------------------------------|----------------------|
| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
| Avg Bid: 316,540        | Avg Bid: 313,180              | Avg Bid: 311,482                 | Tot. Cost: 229,600   |

|                          |                          |                          |                |                     |
|--------------------------|--------------------------|--------------------------|----------------|---------------------|
| Median Bid Not Supported | Median Bid Not Supported | Median Bid Not Supported | Award: 229,600 | Changes: No Changes |
| Bids:                    | Bids:                    | Bids:                    |                |                     |
| 357,000                  | 325,389                  | 325,389                  |                |                     |
| 325,389                  | 319,390                  | 319,390                  |                |                     |
| 319,390                  | 317,753                  | 317,753                  |                |                     |
| 317,753                  | 314,662                  | 314,662                  |                |                     |
| 314,662                  | 313,313                  | 313,313                  |                |                     |
| 313,313                  | 302,000                  | 302,000                  |                |                     |
| 302,000                  | 299,750                  | 299,750                  |                |                     |
| 299,750                  |                          |                          |                |                     |
| 299,600                  |                          |                          |                |                     |

Contract Number: N62467-88-C-4612      Project Title: Replace Roofs Bldgs 400,403,412,414, & 429

Contract Source: ROICC NAS Memphis      Government Estimate: 228,000

Filename: MFS15

| Straight Average<br>Method          | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|-------------------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 247,594                   | Avg. Bid: 253,500                | Avg. Bid: 247,594                   | Tot. Cost: 206,000      |
| Median Bid Not Supported            | Median Bid Not Supported         | Median Bid Not Supported            | Award: 206,000          |
| Bids: 283,283<br>253,500<br>206,000 | Bids: 253,500                    | Bids: 283,283<br>253,500<br>206,000 | Changes: No Changes     |

Contract Number: N62467-89-C-4517 Project Title: Demo/Removal Bldgs S-39 & N-84

Contract Source: ROICC NAS Memphis Government Estimate: Unknown

Filename: MFS16

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 165,809          | Avg. Bid: 144,283                | Avg. Bid: 165,809                   | Tot. Cost: 168,500      |

| Median Bid Supported | Median Bid Supported | Award:        |
|----------------------|----------------------|---------------|
| Bids:                | Bids:                | Changes:      |
| 390,775              | 234,900              |               |
| 234,900              | 178,200              | P00001 53,500 |
| 178,200              | 174,000              | P00002 44,000 |
| 174,000              | 113,798              | P00003 1,000  |
| 113,798              | 92,000               |               |
| 92,000               | 72,798               |               |
| 72,798               | 70,000               |               |
| 70,000               |                      |               |

(All bids accepted since  
Gov't estimate unknown)

Contract Number: N62467-89-C-4533 Project Title: Replace Water Dist. Lines at Mobile Home Park

Contract Source: ROICC NAS Memphis Government Estimate: 97,476

Filename: MFS17

| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
|-------------------------|-------------------------------|----------------------------------|----------------------|
| Avg. Bid: 97,657        | Avg. Bid: 98,229              | Avg. Bid: 98,229                 | Tot. Cost: 100,637   |

| Median Bid Supported |   | Median Bid Supported |  |
|----------------------|---|----------------------|--|
| Bids:                | 131,938<br>119,770<br>105,777<br>99,949<br>99,250<br>94,949<br>69,680<br>59,940 | Bids:                | 119,770<br>105,777<br>99,949<br>99,250<br>94,949<br>69,680 |
|                      |   | Award:               | 69,680   |
|                      |   | Changes:             | P00002 29,457<br>P00003 1,500                              |

Contract Number: N62467-90- N62467-90-C-4538 Project Title: Dakar Street Bridge Repairs

Contract Source: ROICC NAS Memphis Government Estimate: 37,165

Filename: MFS18

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 71,055           | Avg. Bid: 67,197                 | Avg. Bid: 0                         | Tot. Cost: 58,485       |

Median Bid Not Supported

Bids: 95,200  
69,250  
67,340  
65,000  
58,485

Median Bid Not Supported

Bids: 69,250  
67,340  
65,000

Award: 58,485

Bids: All bids outside  
of range

Changes: No Changes

Contract Number: N62467-89-C 4553 Project Title: Replace Furnaces and A/C in Capehart Housing

Contract Source: ROICC NAS Memphis Government Estimate: 660,000

Filename: MFS19

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 511,552          | Avg. Bid: 502,918                | Avg. Bid: 532,302                   | Tot. Cost: 464,206      |

Median Bid Not Supported

Median Bid Not Supported

Median Bid Not Supported

Award: 418,000

| Bids:   | Bids:   | Bids:   | Changes:       |
|---------|---------|---------|----------------|
| 708,715 | 598,500 | 708,715 | P00002 20,824  |
| 598,500 | 569,500 | 598,500 | P00003 30,462  |
| 569,500 | 526,491 | 569,500 | P00004 2,307   |
| 526,491 | 523,920 | 526,491 | P00005 (7,387) |
| 523,920 | 512,712 | 523,920 |                |
| 512,712 | 506,382 | 512,712 |                |
| 506,382 | 487,940 | 506,382 |                |
| 487,940 | 487,908 | 487,940 |                |
| 487,908 | 467,000 | 487,908 |                |
| 467,000 | 466,251 | 467,000 |                |
| 466,251 | 458,989 | 466,251 |                |
| 458,989 | 429,418 |         |                |
| 429,418 | 418,000 |         |                |
| 418,000 |         |         |                |

Contract Number: N62467-90-C-4556 Project Title: Replace Roof Bldg 762

Contract Source: ROICC NAS Memphis Government Estimate: 45,000

Filename: MFS20

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 75,082           | Avg. Bid: 76,852                 | Avg. Bid: 42,000                    | Tot. Cost: 63,114       |

| Median Bid Not Supported | Median Bid Not Supported | Median Bid Supported | Award:   |
|--------------------------|--------------------------|----------------------|----------|
| Bids: 102,855            | Bids: 80,850             | Bids: 42,000         | Changes: |
| 80,850                   | 79,500                   |                      | P00002   |
| 79,500                   | 70,205                   |                      | 21,114   |
| 70,205                   |                          |                      |          |
| 42,000                   |                          |                      |          |

Contract Number: N62467-90-C-4557 Project Title: Installation of Runway End Identification Lights

Contract Source: ROICC NAS Memphis Government Estimate: 38,000

Filename: MFS21

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 39,982           | Avg. Bid: 37,653                 | Avg. Bid: 34,579                    | Tot. Cost: 26,352       |

Median Bid Not Supported

Median Bid Not Supported

Median Bid Not Supported

Award: 24,310

Bids: 67,300  
49,949  
42,420  
36,694  
32,400  
26,800  
24,310

Bids: 49,949  
42,420  
36,694  
32,400  
26,800

Bids: 42,420  
36,694  
32,400  
26,800

Changes:

P00002 2,042

Contract Number: N62467-89-C-4560 Project Title: Repairs to Bldg 405

Contract Source: ROICC NAS Memphis Government Estimate: 200,000

Filename: MFS22

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 303,298          | Avg. Bid: 293,830                | Avg. Bid: 228,500                   | Tot. Cost: 211,051      |

Median Bid Not Supported

Bids: 428,000  
322,000  
309,491  
250,000  
207,000

Median Bid Not Supported

Bids: 322,000  
309,491  
250,000

Median Bid Not Supported

Bids: 250,000  
207,000

Award: 207,000

Changes: P00002 2,554  
P00003 1,497

Contract Number: N62467-89-C-4577 Project Title: Emergency Vehicle Garage at Naval Hospital

Contract Source: ROICC NAS Memphis Government Estimate: 101,000

Filename: MFS23

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 148,670          | Avg. Bid: 147,561                | Avg. Bid: 0                         | Tot. Cost: 140,395      |

Median Bid Not Supported

Bids: 164,000  
159,950  
142,849  
139,885  
136,665

Median Bid Not Supported

Bids: 159,950  
142,849  
139,885

Award: 136,665

Bids: All bids outside  
of range.

Changes:  
P00002 3,730

Contract Number: N62467-89-C-4581 Project Title: Demo/Removal of Bldgs N-84 & S-60

Contract Source: ROICC NAS Memphis Government Estimate: Unknown

Filename: MFS24

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price   |
|----------------------------|----------------------------------|-------------------------------------|---------------------------|
| <b>Avg. Bid:</b> 151,503   | <b>Avg. Bid:</b> 153,060         | <b>Avg. Bid:</b> 0                  | <b>Tot. Cost:</b> 175,066 |

Median Bid Supported

Median Bid Supported

|       |   |       |                               |          |               |
|-------|---|-------|-------------------------------|----------|---------------|
| Bids: | 158,650<br>153,060<br>142,798                       | Bids: | All bids outside<br>of range. | Award:   | 142,798       |
|       | (All bids accepted since<br>Gov't estimate unknown) |       |                               | Changes: | P00002 32,268 |

|                  |                   |                      |  |
|------------------|-------------------|----------------------|--|
| Contract Number: | N62467-90-C-4517  | Project Title:       | Replace 34 Pole Mounted PCB Transformers |
| Contract Source: | ROICC NAS Memphis | Government Estimate: | 92,000                                   |
| Filename:        | MFS25             |                      |  |

|                         |                               |                                  |                      |
|-------------------------|-------------------------------|----------------------------------|----------------------|
| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
| Avg. Bid: 93,914        | Avg. Bid: 96,008              | Avg. Bid: 93,914                 | Tot. Cost: 73,672    |

|                          |                          |                          |               |
|--------------------------|--------------------------|--------------------------|---------------|
| Median Bid Not Supported | Median Bid Not Supported | Median Bid Not Supported | Award: 71,668 |
| Bids:                    | Bids:                    | Bids:                    | Changes:      |
| 109,876                  | 109,715                  | 109,876                  | P00002        |
| 109,715                  | 94,034                   | 109,715                  | 2,004         |
| 94,034                   | 84,275                   | 94,034                   |               |
| 84,275                   | 71,668                   | 84,275                   |               |
| 71,668                   |                          | 71,668                   |               |

Contract Number: N62467-90-C-4529      Project Title: Replace Roof Bldg S-78

Contract Source: ROICC NAS Memphis      Government Estimate: 115,000

Filename: MFS26

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 181,948          | Avg. Bid: 191,235                | Avg. Bid: 181,948                   | Tot. Cost: 200,632      |

| Median Bid Supported |                               | Median Bid Supported |                               |
|----------------------|-------------------------------|----------------------|-------------------------------|
| Bids:                | 195,000<br>191,235<br>159,608 | Bids:                | 195,000<br>191,235<br>159,608 |
|                      |                               | Award:               | 191,235                       |
|                      |                               | Changes:             | P00002 8,721<br>P00003 676    |

|                  |                   |                      |                                   |
|------------------|-------------------|----------------------|-----------------------------------|
| Contract Number: | N62467-90-C-4572  | Project Title:       | Repairs/Alterations to Bldg N-110 |
| Contract Source: | ROICC NAS Memphis | Government Estimate: | 230,000                           |
| Filename:        | MFS27             |                      |                                   |

|                         |                               |                                  |                           |
|-------------------------|-------------------------------|----------------------------------|---------------------------|
| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price      |
| <b>Avg Bid: 197,180</b> | <b>Avg Bid: 200,200</b>       | <b>Avg Bid: 208,794</b>          | <b>Tot. Cost: 184,924</b> |

|                          |                          |                          |          |         |
|--------------------------|--------------------------|--------------------------|----------|---------|
| Median Bid Not Supported | Median Bid Not Supported | Median Bid Not Supported | Award:   | 182,953 |
| Bids:                    | Bids:                    | Bids:                    | Changes: |         |
| 243,169                  | 218,898                  | 243,169                  | P00002   | 1,070   |
| 218,898                  | 214,000                  | 218,898                  | P00003   | (391)   |
| 214,000                  | 184,950                  | 214,000                  | P00004   | 1,292   |
| 184,950                  | 182,953                  | 184,950                  |          |         |
| 182,953                  |                          | 182,953                  |          |         |
| 139,110                  |                          |                          |          |         |

Contract Number: N62467-89-C-4509 Project Title: Replace Underground Signal Cable

Contract Source: ROICC NAS Memphis Government Estimate: 130,000

Filename: MFS28

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 134,448          | Avg. Bid: 132,084                | Avg. Bid: 132,084                   | Tot. Cost: 83,000       |

| Median Bid Not Supported |         | Median Bid Not Supported |                     |
|--------------------------|---------|--------------------------|---------------------|
| Bids:                    |         | Bids:                    |                     |
| 219,000                  | 166,500 | 166,500                  | Award: 83,000       |
| 166,500                  | 166,257 | 166,257                  | Changes: No Changes |
| 166,257                  | 165,150 | 165,150                  |                     |
| 165,150                  | 149,890 | 149,890                  |                     |
| 149,890                  | 134,755 | 134,755                  |                     |
| 134,755                  | 134,375 | 134,375                  |                     |
| 134,375                  | 128,587 | 128,587                  |                     |
| 128,587                  | 127,000 | 127,000                  |                     |
| 127,000                  | 121,744 | 121,744                  |                     |
| 121,744                  | 121,391 | 121,391                  |                     |
| 121,391                  | 118,883 | 118,883                  |                     |
| 118,883                  | 118,168 | 118,168                  |                     |
| 118,168                  | 101,110 | 101,110                  |                     |
| 101,110                  | 95,362  | 95,362                   |                     |
| 95,362                   |         |                          |                     |
| 83,000                   |         |                          |                     |

Contract Number: N62467-90-C-4660 Project Title: Expeditionary Airfield Equipment School

Contract Source: ROICC NAS Memphis Government Estimate: 128,000

Filename: MFS29

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 160,353          | Avg. Bid: 168,944                | Avg. Bid: 119,224                   | Tot. Cost: 139,330      |

Median Bid Not Supported

Bids: 207,447  
195,517  
142,371  
96,077

Median Bid Not Supported

Bids: 195,517  
142,371

Median Bid Supported

Bids: 142,371  
96,077

Award: 142,371

Changes:

P00002 (3,041)

Contract Number: N62467-90-C-4605 Project Title: Replace Chiller at Bldg 499

Contract Source: ROICC NAS Memphis Government Estimate: 83,000

Filename: MFS30

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 75,152           | Avg. Bid: 75,331                 | Avg. Bid: 75,152                    | Tot. Cost: 72,975       |

Median Bid Not Supported

Bids: 86,300  
79,339  
78,647  
78,110  
77,303  
76,393  
72,834  
64,690  
62,754

Median Bid Not Supported

Bids: 79,339  
78,647  
78,110  
77,303  
76,393  
72,834  
64,690

Median Bid Not Supported

Bids: 86,300  
79,339  
78,647  
78,110  
77,303  
76,393  
72,834  
64,690  
62,754

Award: 62,754

Changes: P00001 10,976  
P00002 (755)

Contract Number: N62467-86-C-0729 Project Title: SIMA, NAVSTA Ingleside, TX

Contract Source: SOUTHDIV Government Estimate: 6,000,000

Filename: SODIV1

| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
|-------------------------|-------------------------------|----------------------------------|----------------------|
| Avg. Bid: 5,766,833     | Avg. Bid: 5,768,750           | Avg. Bid: 5,766,833              | Tot. Cost: 5,613,536 |

Median Bid Not Supported

Median Bid Not Supported

Median Bid Not Supported

Award: 5,532,000

| Bids:     | Bids:     | Bids:     | Changes:        |
|-----------|-----------|-----------|-----------------|
| 5,994,000 | 5,894,000 | 5,994,000 | P00002 357      |
| 5,894,000 | 5,845,000 | 5,894,000 | P00003 20,385   |
| 5,845,000 | 5,778,000 | 5,845,000 | P00004 1,105    |
| 5,778,000 | 5,558,000 | 5,778,000 | P00006 2,020    |
| 5,558,000 |           | 5,558,000 | P00007 2,867    |
| 5,532,000 |           | 5,532,000 | P00008 13,267   |
|           |           |           | P00009 10,703   |
|           |           |           | P00010 5,188    |
|           |           |           | P00011 3,076    |
|           |           |           | P00012 5,113    |
|           |           |           | P00013 3,828    |
|           |           |           | P00014 (6,525)  |
|           |           |           | P00017 1,785    |
|           |           |           | P00018 1,090    |
|           |           |           | P00019 3,130    |
|           |           |           | P00020 23,084   |
|           |           |           | P00021 2,663    |
|           |           |           | P00022 (11,600) |

Contract Number: N62467-86-C-0731 Project Title: BEQ/Galley, NAVSTA Ingleside, TX

Contract Source: SOUTHDIR Government Estimate: 5,583,000

Filename: SODIV2

| Straight Average Method    | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price        |
|----------------------------|-------------------------------|----------------------------------|-----------------------------|
| <b>Avg. Bid:</b> 6,148,452 | <b>Avg. Bid:</b> 6,176,945    | <b>Avg. Bid:</b> 6,148,452       | <b>Tot. Cost:</b> 6,150,480 |
| Median Bid Supported       | Median Bid Not Supported      | Median Bid Supported             |                             |
| Bids:                      | Bids:                         | Bids:                            | Award:                      |
| 6,500,000                  | 6,420,375                     | 6,500,000                        | 5,998,000                   |
| 6,420,375                  | 6,253,351                     | 6,420,375                        | Changes:                    |
| 6,253,351                  | 6,200,000                     | 6,253,351                        | P00003 5,500                |
| 6,200,000                  | 6,013,000                     | 6,200,000                        | P00004 1,250                |
| 6,013,000                  | 5,998,000                     | 6,013,000                        | P00005 15,000               |
| 5,998,000                  |                               | 5,998,000                        | P00006 10,273               |
| 5,654,436                  |                               | 5,654,436                        | P00008 (1,893)              |
|                            |                               |                                  | P00010 29,734               |
|                            |                               |                                  | P00011 2,357                |
|                            |                               |                                  | P00012 (3,633)              |
|                            |                               |                                  | P00013 7,099                |
|                            |                               |                                  | P00014 1,383                |
|                            |                               |                                  | P00015 25,000               |
|                            |                               |                                  | P00017 (3,422)              |
|                            |                               |                                  | P00018 3,254                |
|                            |                               |                                  | P00019 247                  |
|                            |                               |                                  | P00020 2,551                |
|                            |                               |                                  | P00021 846                  |
|                            |                               |                                  | P00022 34,476               |
|                            |                               |                                  | P00024 22,458               |

Contract Number: N62467-86-C-0468 Project Title: Medical/Dental Clinic, NAS Pensacola, FL

Contract Source: SOUTHDIR Government Estimate: 5,880,000

Filename: SODIV3

| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
|-------------------------|-------------------------------|----------------------------------|----------------------|
| Avg. Bid: 6,585,335     | Avg. Bid: 6,618,392           | Avg. Bid: 6,585,335              | Tot. Cost: 6,435,557 |

Median Bid Not Supported

Bids: 6,682,000  
6,661,176  
6,644,000  
6,550,000  
6,389,500

Median Bid Not Supported

Bids: 6,661,176  
6,644,000  
6,550,000

Median Bid Not Supported

Bids: 6,682,000  
6,661,176  
6,644,000  
6,550,000  
6,389,500

Award: 6,389,500

Changes:

P00002 6,571  
P00003 1,465  
P00004 10,000  
P00008 (367)  
P00009 9,000  
P00010 11,190  
P00016 3,200  
P00017 548  
P00018 1,789  
P00021 614  
P00024 2,047

|                  |                  |                      |  |
|------------------|------------------|----------------------|--|
| Contract Number: | N62467-86-C-0266 | Project Title:       | Ammunition Overhaul Shop, NAVWEAPSTA, Charleston, SC |
| Contract Source: | SOUTHDIR         | Government Estimate: | 2,709,000  |
| Filename:        | SODIV4           |                      |  |

| Straight Average Method   | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price        |
|---------------------------|-------------------------------|----------------------------------|-----------------------------|
| <b>Avg Bid:</b> 3,151,183 | <b>Avg Bid:</b> 3,183,826     | <b>Avg Bid:</b> 3,151,183        | <b>Tot. Cost:</b> 2,894,082 |
| Median Bid Not Supported  | Median Bid Not Supported      | Median Bid Not Supported         | Award: 2,834,150            |
| Bids:                     | Bids:                         | Bids:                            | Changes:                    |
| 3,305,000                 | 3,279,500                     | 3,305,000                        | P00001 6,067                |
| 3,279,500                 | 3,242,300                     | 3,279,500                        | P00002 5,122                |
| 3,242,300                 | 3,190,000                     | 3,242,300                        | P00003 1,687                |
| 3,190,000                 | 3,106,800                     | 3,190,000                        | P00006 667                  |
| 3,106,800                 | 3,100,532                     | 3,106,800                        | P00007 5,270                |
| 3,100,532                 | 2,834,150                     | 3,100,532                        | P00009 7,801                |
| 2,834,150                 |                               | 2,834,150                        | P00010 12,239               |
|                           |                               |                                  | P00011 3,880                |
|                           |                               |                                  | P00012 3,081                |
|                           |                               |                                  | P00013 778                  |
|                           |                               |                                  | P00014 785                  |
|                           |                               |                                  | P00015 8,798                |
|                           |                               |                                  | P00017 3,757                |

|                  |                  |                      |                            |
|------------------|------------------|----------------------|----------------------------|
| Contract Number: | N62467-86-C-0096 | Project Title:       | NAVMARRESCEN, Amarillo, TX |
| Contract Source: | SOUTHDIR         | Government Estimate: | 2,720,000                  |
| Filename:        | SODIV5           |                      |                            |

|                         |                               |                                  |                      |
|-------------------------|-------------------------------|----------------------------------|----------------------|
| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
| Avg. Bid: 3,048,526     | Avg. Bid: 2,962,068           | Avg. Bid: 3,048,526              | Tot. Cost: 2,826,254 |

|                          |                          |                          |          |           |
|--------------------------|--------------------------|--------------------------|----------|-----------|
| Median Bid Not Supported | Median Bid Not Supported | Median Bid Not Supported | Award:   | 2,799,970 |
| Bids:                    | Bids:                    | Bids:                    | Changes: |           |
| 3,470,000                | 2,971,222                | 3,470,000                | P00002   | (560)     |
| 2,971,222                | 2,952,913                | 2,971,222                | P00003   | 15,192    |
| 2,952,913                |                          | 2,952,913                | P00004   | 3,306     |
| 2,799,970                |                          | 2,799,970                | P00005   | 905       |
|                          |                          |                          | P00006   | 1,793     |
|                          |                          |                          | P00007   | (4,026)   |
|                          |                          |                          | P00008   | 1,090     |
|                          |                          |                          | P00009   | 2,977     |
|                          |                          |                          | P00013   | 158       |
|                          |                          |                          | P00014   | 241       |
|                          |                          |                          | P00015   | 3,037     |
|                          |                          |                          | P00016   | 2,326     |
|                          |                          |                          | P00017   | (155)     |

|                  |                  |                      |   |
|------------------|------------------|----------------------|---|
| Contract Number: | N62467-87-C-0011 | Project Title:       | Sewage & Indust. W/W Treat. Plant, NAVSTA Mayport, FL |
| Contract Source: | SOUTHDIV         | Government Estimate: | 2,450,000   |
| Filename:        | SODIV6           |                      |   |

| Straight Average Method    | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price        |
|----------------------------|-------------------------------|----------------------------------|-----------------------------|
| <b>Avg. Bid:</b> 3,200,238 | <b>Avg. Bid:</b> 3,172,312    | <b>Avg. Bid:</b> 3,000,247       | <b>Tot. Cost:</b> 2,903,117 |
| Median Bid Not Supported   | Median Bid Not Supported      | Median Bid Not Supported         | Award: 2,795,955            |
| Bids:                      | Bids:                         | Bids:                            | Changes:                    |
| 3,800,000                  | 3,550,000                     | 3,126,478                        | P00001 10,000               |
| 3,550,000                  | 3,231,908                     | 3,044,000                        | P00002 9,847                |
| 3,231,908                  | 3,219,000                     | 3,039,800                        | P00003 (3,794)              |
| 3,219,000                  | 3,126,478                     | 2,995,000                        | P00004 3,389                |
| 3,126,478                  | 3,044,000                     | 2,795,955                        | P00005 (185)                |
| 3,044,000                  | 3,039,800                     |                                  | P00006 19,077               |
| 3,039,800                  | 2,995,000                     |                                  | P00007 22,825               |
| 2,995,000                  |                               |                                  | P00008 (4,677)              |
| 2,795,955                  |                               |                                  | P00009 6,535                |
|                            |                               |                                  | P00010 6,209                |
|                            |                               |                                  | P00012 1,797                |
|                            |                               |                                  | P00015 919                  |
|                            |                               |                                  | P00016 35,220               |

|                  |                  |                      |   |
|------------------|------------------|----------------------|---|
| Contract Number: | N62467-87-C-0093 | Project Title:       | Missile Magazines, NAVVPNSTA Charleston, SC |
| Contract Source: | SOUTHDIR         | Government Estimate: | 3,006,000                                   |
| Filename:        | SODIV7           |                      |   |

|                         |                               |                                  |                      |
|-------------------------|-------------------------------|----------------------------------|----------------------|
| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
| Avg. Bid: 2,905,820     | Avg. Bid: 2,891,914           | Avg. Bid: 2,905,820              | Tot. Cost: 2,578,643 |

|                          |                          |                          |                  |
|--------------------------|--------------------------|--------------------------|------------------|
| Median Bid Not Supported | Median Bid Not Supported | Median Bid Not Supported | Award: 2,578,357 |
| Bids:                    | Bids:                    | Bids:                    | Changes:         |
| 3,275,000                | 3,227,692                | 3,275,000                | P00005           |
| 3,227,692                | 2,775,049                | 3,227,692                | 286              |
| 2,775,049                | 2,673,000                | 2,775,049                |                  |
| 2,673,000                |                          | 2,673,000                |                  |
| 2,578,357                |                          | 2,578,357                |                  |

Contract Number: N62467-87-C-0270      Project Title: Youth Center, NAS Pensacola, FL

Contract Source: SOUTHDIV      Government Estimate: 1,437,000

Filename: SODIV8

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 1,256,258        | Avg. Bid: 1,247,316              | Avg. Bid: 1,256,258                 | Tot. Cost: 1,233,061    |

| Median Bid Not Supported | Median Bid Not Supported | Award:         |
|--------------------------|--------------------------|----------------|
| Bids:                    | Bids:                    | Changes:       |
| 1,333,344                | 1,273,000                | P00002 1,417   |
| 1,273,000                | 1,262,000                | P00004 11,193  |
| 1,262,000                | 1,206,948                | P00005 2,300   |
| 1,206,948                |                          | P00006 455     |
| 1,206,000                |                          | P00008 19,047  |
|                          |                          | P00009 1,082   |
|                          |                          | P00012 (8,433) |

Contract Number: N62467-83-C-0345      Project Title: Aircraft Maint. Area Lighting, England AFB, LA

Contract Source: SOUTHDIV      Government Estimate: 721,680

Filename: SODIV9

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price   |
|----------------------------|----------------------------------|-------------------------------------|---------------------------|
| <b>Avg. Bid: 918,032</b>   | <b>Avg. Bid: 911,289</b>         | <b>Avg. Bid: 840,641</b>            | <b>Tot. Cost: 780,003</b> |

Median Bid Not Supported

Bids: 1,197,980  
1,128,898  
1,000,000  
986,850  
986,735  
955,500  
949,160  
934,684  
931,000  
873,300  
867,700  
861,139  
827,875  
800,000  
797,500  
769,000  
744,216

Median Bid Not Supported

Bids: 1,128,898  
1,000,000  
986,850  
986,735  
955,500  
949,160  
934,684  
931,000  
873,300  
867,700  
861,139  
827,875  
800,000  
797,500  
769,000

Median Bid Not Supported

Bids: 934,684  
931,000  
873,300  
867,700  
861,139  
827,875  
800,000  
797,500  
769,000  
744,216

Award: 744,216

Changes: P00001 535  
P00002 22,862  
P00003 12,390

Contract Number: N62467-87-C-0183 Project Title: Vanities, Siding & Patios Capehart Hsg, NAS Meridian, MS

Contract Source: SOUTHDIR Government Estimate: 1,610,500

Filename: SODIV10

| Straight Average Method   | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price       |
|---------------------------|-------------------------------|----------------------------------|----------------------------|
| <b>Avg Bid: 1,425,252</b> | <b>Avg Bid: 1,407,280</b>     | <b>Avg Bid: 1,435,147</b>        | <b>Tot Cost: 1,034,499</b> |

Median Bid Not Supported

Bids: 2,130,200  
1,866,000  
1,717,673  
1,655,981  
1,549,474  
1,479,896  
1,422,621  
1,420,748  
1,372,043  
1,292,476  
1,237,500  
1,230,113  
1,213,400  
1,198,989  
1,045,000  
971,921

Median Bid Not Supported

Bids: 1,866,000  
1,717,673  
1,655,981  
1,549,474  
1,479,896  
1,422,621  
1,420,748  
1,372,043  
1,292,476  
1,237,500  
1,230,113  
1,213,400  
1,198,989  
1,045,000

Median Bid Not Supported

Bids: 1,866,000  
1,717,673  
1,655,981  
1,549,474  
1,479,896  
1,422,621  
1,420,748  
1,372,043  
1,292,476  
1,237,500  
1,230,113  
1,213,400  
1,198,989

Award: 1,045,000

Changes: P00004 (5,805)  
P00005 30,073  
P00006 456  
P00008 910  
P00009 (40,000)  
P00011 3,865

Contract Number: N62467-87-C-0193      Project Title: Electrical Ties to SCPA, CNSYD, Charleston, SC

Contract Source: SOUTHDIV      Government Estimate: 778,000

Filename: SODIV11

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 987,767          | Avg. Bid: 968,808                | Avg. Bid: 966,487                   | Tot. Cost: 959,678      |

Median Bid Not Supported

Median Bid Not Supported

Median Bid Not Supported

Award: 964,165

Bids: 1,030,329  
968,808  
964,165

Bids: 968,808

Bids: 968,808  
964,165

Changes:

P00002 10,000  
P00003 (87,415)  
P00004 (2,500)  
P00005 (12,293)  
P00006 13,750  
P00007 17,581  
P00008 (619)  
P00009 7,871  
P00012 20,000  
P00013 2,989  
P00015 5,163  
P00016 23,000  
P00017 (2,014)

|                  |                  |                      |                                     |
|------------------|------------------|----------------------|-------------------------------------|
| Contract Number: | N62467-87-C-0006 | Project Title:       | Pier Alterations, NAS Pensacola, FL |
| Contract Source: | SOUTH DIV        | Government Estimate: | 12,800,000                          |
| Filename:        | SODIV12          |                      |                                     |

|                         |                               |                                  |                       |
|-------------------------|-------------------------------|----------------------------------|-----------------------|
| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price  |
| Avg. Bid: 15,593,836    | Avg. Bid: 15,717,690          | Avg. Bid: 15,593,836             | Tot. Cost: 14,369,456 |

|                          |                          |                          |          |            |
|--------------------------|--------------------------|--------------------------|----------|------------|
| Median Bid Not Supported | Median Bid Not Supported | Median Bid Not Supported | Award:   | 13,764,798 |
| Bids:                    | Bids:                    | Bids:                    | Changes: |            |
| 16,555,895               | 16,268,000               | 16,555,895               | P00003   | 19,334     |
| 16,268,000               | 16,250,331               | 16,268,000               | P00004   | 6,361      |
| 16,250,331               | 16,145,000               | 16,250,331               | P00005   | 2,690      |
| 16,145,000               | 15,766,000               | 16,145,000               | P00006   | 10,602     |
| 15,766,000               | 15,712,000               | 15,766,000               | P00007   | 1,667      |
| 15,712,000               | 15,579,000               | 15,712,000               | P00008   | 4,667      |
| 15,579,000               | 14,303,500               | 15,579,000               | P00011   | 10,040     |
| 14,303,500               |                          | 14,303,500               | P00012   | 8,459      |
| 13,764,798               |                          | 13,764,798               | P00013   | 5,007      |
|                          |                          |                          | P00015   | 4,170      |
|                          |                          |                          | P00017   | 3,956      |
|                          |                          |                          | P00020   | 40,000     |
|                          |                          |                          | P00021   | 1,170      |
|                          |                          |                          | P00022   | 7,316      |
|                          |                          |                          | P00023   | 1,171      |
|                          |                          |                          | P00025   | 41,710     |
|                          |                          |                          | P00026   | (771)      |
|                          |                          |                          | P00027   | 6,449      |

Continued Next Page

Changes (continued):

|        |         |
|--------|---------|
| P00028 | 45,000  |
| P00029 | 8,871   |
| P00030 | 251,000 |
| P00031 | 2,781   |
| P00032 | 18,086  |
| P00033 | 29,896  |
| P00034 | 4,326   |
| P00035 | 3,126   |
| P00036 | 40,801  |
| P00038 | 26,773  |

|                  |                  |                      |   |
|------------------|------------------|----------------------|---|
| Contract Number: | N62467-86-C-0602 | Project Title:       | Reserve Center Addition, AFRC, Greensboro, NC |
| Contract Source: | SOUTHDIR         | Government Estimate: | 954,000                                       |
| Filename:        | SODIV13          |                      |   |

| Straight Average Method  | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
|--------------------------|-------------------------------|----------------------------------|----------------------|
| Avg. Bid: 1,348,500      | Avg. Bid: 1,214,500           | Avg. Bid: 1,029,500              | Tot. Cost: 976,059   |
| Median Bid Not Supported | Median Bid Not Supported      | Median Bid Not Supported         | Award: 965,000       |
| Bids:                    | Bids:                         | Bids:                            | Changes:             |
| 2,000,000                | 1,335,000                     | 1,094,000                        | P00002 3,360         |
| 1,335,000                | 1,094,000                     | 965,000                          | P00004 5,059         |
| 1,094,000                |                               |                                  | P00006 1,481         |
| 965,000                  |                               |                                  | P00008 1,340         |
|                          |                               |                                  | P00010 310           |
|                          |                               |                                  | P00011 400           |
|                          |                               |                                  | P00012 827           |
|                          |                               |                                  | P00014 (818)         |
|                          |                               |                                  | P00016 (900)         |

|                  |                  |                      |   |
|------------------|------------------|----------------------|---|
| Contract Number: | N62467-86-C-0089 | Project Title:       | Aircraft Engine Shop Addition, NAS Jacksonville, FL |
| Contract Source: | SOUTHDIR         | Government Estimate: | 4,000,000   |
| Filename:        | SODIV14          |                      |   |

| Straight Average Method    | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price        |
|----------------------------|-------------------------------|----------------------------------|-----------------------------|
| <b>Avg. Bid:</b> 4,102,333 | <b>Avg. Bid:</b> 4,094,000    | <b>Avg. Bid:</b> 4,102,333       | <b>Tot. Cost:</b> 4,168,134 |
| Median Bid Supported       | Median Bid Supported          | Median Bid Supported             | Award: 4,094,000            |
| Bids:                      | Bids:                         | Bids:                            | Changes:                    |
| 4,119,000                  | 4,094,000                     | 4,119,000                        | P00001 1,792                |
| 4,094,000                  |                               | 4,094,000                        | P00002 2,690                |
| 4,094,000                  |                               | 4,094,000                        | P00005 2,123                |
|                            |                               |                                  | P00007 10,970               |
|                            |                               |                                  | P00009 5,121                |
|                            |                               |                                  | P00010 4,710                |
|                            |                               |                                  | P00012 784                  |
|                            |                               |                                  | P00013 12,725               |
|                            |                               |                                  | P00016 19,150               |
|                            |                               |                                  | P00017 3,235                |
|                            |                               |                                  | P00018 2,154                |
|                            |                               |                                  | P00021 1,321                |
|                            |                               |                                  | P00023 (7,984)              |
|                            |                               |                                  | P00025 2,000                |
|                            |                               |                                  | P00026 604                  |
|                            |                               |                                  | P00027 6,493                |
|                            |                               |                                  | P00028 5,187                |
|                            |                               |                                  | P00030 1,059                |

Contract Number: N62467-85-C-0447 Project Title: Replace Golf Clubhouse, NAS Corpus Christi, TX

Contract Source: SOUTHDIRV Government Estimate: 567,540

Filename: SODIV15

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 668,345          | Avg. Bid: 655,467                | Avg. Bid: 640,475                   | Tot. Cost: 597,585      |

| Median Bid Not Supported | Median Bid Not Supported | Median Bid Not Supported | Award:         |
|--------------------------|--------------------------|--------------------------|----------------|
| Bids:                    | Bids:                    | Bids:                    | 595,500        |
| 779,825                  | 663,000                  | 663,000                  | Changes:       |
| 663,000                  | 653,400                  | 653,400                  | P00001 926     |
| 653,400                  | 650,000                  | 650,000                  | P00003 1,118   |
| 650,000                  | 595,500                  | 595,500                  | P00004 (6,872) |
| 595,500                  |                          |                          | P00006 6,113   |
|                          |                          |                          | P00007 800     |

|                  |                  |                      |   |
|------------------|------------------|----------------------|---|
| Contract Number: | N62467-85-C-0152 | Project Title:       | Power Plant Mods, CNSYD, Charleston, SC |
| Contract Source: | SOUTHDIV         | Government Estimate: | 2,670,000                               |
| Filename:        | SODIV16          |                      |   |

| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
|-------------------------|-------------------------------|----------------------------------|----------------------|
| Avg. Bid: 2,789,500     | Avg. Bid: 2,840,500           | Avg. Bid: 2,789,500              | Tot. Cost: 3,000,565 |
| Median Bid Supported    | Median Bid Supported          | Median Bid Supported             | Award: 2,720,000     |
| Bids:                   | Bids:                         | Bids:                            | Changes:             |
| 3,038,000               | 2,961,000                     | 3,038,000                        | P00001 29,741        |
| 2,961,000               | 2,720,000                     | 2,961,000                        | P00002 68,153        |
| 2,720,000               |                               | 2,720,000                        | P00003 5,030         |
| 2,439,000               |                               | 2,439,000                        | P00004 6,912         |
|                         |                               |                                  | P00005 25,337        |
|                         |                               |                                  | P00006 21,179        |
|                         |                               |                                  | P00007 23,997        |
|                         |                               |                                  | P00008 80,000        |
|                         |                               |                                  | P00011 1,646         |
|                         |                               |                                  | P00013 4,000         |
|                         |                               |                                  | P00014 1,067         |
|                         |                               |                                  | P00016 13,503        |

Contract Number: N62467-84-C-0240 Project Title: C-9 Maintenance Hangar, NAS Atlanta, GA

Contract Source: SOUTHDIR Government Estimate: 5,100,000

Filename: SODIV17

| Straight Average Method                                | High/Low Bids Excluded Method  | Government Estimate Range Method          | Contract Final Price  |
|--|--------------------------------|---|---|
| <div>Avg. Bid: 5,920,423</div>                         | <div>Avg. Bid: 5,338,000</div> | <div>Avg. Bid: 5,286,667</div>            | <div>Tot. Cost: 6,327,045</div>   |
| Median Bid Supported                                   | Median Bid Supported           | Median Bid Supported                      | Award: 5,328,000  |
| Bids: 7,821,690<br>5,348,000<br>5,328,000<br>5,184,000 | Bids: 5,348,000<br>5,328,000   | Bids: 5,348,000<br>5,328,000<br>5,184,000 | Changes:<br>P00002 1,900<br>P00003 3,810<br>P00005 4,549<br>P00006 5,626<br>P00007 1,350<br>P00010 4,757<br>P00011 3,000<br>P00012 3,500<br>P00013 10,801<br>P00014 7,000<br>P00015 23,095<br>P00016 2,322<br>P00017 2,971<br>P00019 1,238<br>P00020 2,465<br>P00021 765<br>P00022 1,160<br>P00024 11,696 |

Continued Next Page

Changes (continued):

|        |         |
|--------|---------|
| P00025 | 1,515   |
| P00026 | 3,981   |
| P00027 | 4,096   |
| P00030 | 7,732   |
| P00032 | 802     |
| P00033 | (2,900) |
| P00034 | (7,000) |
| P00036 | (1,800) |
| P00037 | 614     |
| P00038 | 900,000 |

Contract Number: N62472-87-C-0457      Project Title: Repair Roofs, NAVRESCEN Quincy, MA

Contract Source: NORTHDIV      Government Estimate: 110,000

Filename: NODIV1

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg. Bid: 163,679          | Avg. Bid: 154,078                | Avg. Bid: 136,527                   | Tot. Cost: 129,760      |

| Median Bid Not Supported  | Median Bid Not Supported                          | Median Bid Not Supported    |
|---|---|-----------------------------|
| Bids:<br>236,000<br>168,800<br>159,600<br>144,620<br>143,293<br>129,760 | Bids:<br>168,800<br>159,600<br>144,620<br>143,293 | Bids:<br>143,293<br>129,760 |
| Award: 129,760  | Changes: No Changes                               |                             |

|                  |                  |                      |   |
|------------------|------------------|----------------------|---|
| Contract Number: | N62472-87-C-0079 | Project Title:       | 100 Navy Family Housing Units, Ballston Spa, NY |
| Contract Source: | NORTHDIV         | Government Estimate: | 7,000,000                                       |
| Filename:        | NODIV2           |                      |   |

|                         |                               |                                  |                      |
|-------------------------|-------------------------------|----------------------------------|----------------------|
| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
| Avg Bid: 7,575,333      | Avg Bid: 7,245,000            | Avg Bid: 7,575,333               | Tot Cost: 6,866,919  |

|                          |                          |          |           |
|--------------------------|--------------------------|----------|-----------|
| Median Bid Not Supported | Median Bid Not Supported | Award:   | 6,850,000 |
| Bids:                    | Bids:                    | Changes: |           |
| 6,850,000                | 7,245,000                | P00001   | 21,671    |
| 7,245,000                |                          | P00004   | (4,752)   |
| 8,631,000                |                          |          |           |

|                  |                  |                      |   |
|------------------|------------------|----------------------|---|
| Contract Number: | N62472-88-C-0437 | Project Title:       | Sewage Lift Station Upgrade, NAS South Weymouth, MA |
| Contract Source: | NORTHDIV         | Government Estimate: | 158,316   |
| Filename:        | NODIV3           |                      |   |

| Straight Average Method  | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
|--------------------------|-------------------------------|----------------------------------|----------------------|
| Avg. Bid: 242,774        | Avg. Bid: 215,256             | Avg. Bid: 195,451                | Tot. Cost: 206,109   |
| Median Bid Not Supported | Median Bid Not Supported      | Median Bid Supported             | Award: 194,901       |
| Bids:                    | Bids:                         | Bids:                            | Changes:             |
| 373,200                  | 240,087                       | 196,000                          | P00005 6,144         |
| 240,087                  | 209,680                       | 194,901                          | P00006 1,316         |
| 209,680                  | 196,000                       |                                  | P00007 299           |
| 196,000                  |                               |                                  | P00008 673           |
| 194,901                  |                               |                                  | P00009 2,776         |

|                  |                  |                      |  |
|------------------|------------------|----------------------|--|
| Contract Number: | N62A72-84-C-0524 | Project Title:       | Marine Training Facility, NAS South Weymouth, MA |
| Contract Source: | NORTHDIV         | Government Estimate: | 1,093,000  |
| Filename:        | NODIV4           |                      |  |

| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
|-------------------------|-------------------------------|----------------------------------|----------------------|
| Avg. Bid: 1,108,993     | Avg. Bid: 1,123,921           | Avg. Bid: 1,108,993              | Tot. Cost: 1,102,936 |

|                          |                          |                          |                |
|--------------------------|--------------------------|--------------------------|----------------|
| Median Bid Not Supported | Median Bid Not Supported | Median Bid Not Supported | Award: 984,995 |
| Bids:                    | Bids:                    | Bids:                    | Changes:       |
| 1,287,000                | 1,250,000                | 1,287,000                | P00001 10,756  |
| 1,250,000                | 1,215,858                | 1,250,000                | P00002 7,000   |
| 1,215,858                | 1,111,950                | 1,215,858                | P00004 8,104   |
| 1,111,950                | 1,093,000                | 1,111,950                | P00005 25,424  |
| 1,093,000                | 1,087,721                | 1,093,000                | P00006 5,095   |
| 1,087,721                | 984,995                  | 1,087,721                | P00007 3,239   |
| 984,995                  |                          | 984,995                  | P00008 4,268   |
| 841,417                  |                          | 841,417                  | P00009 2,047   |
|                          |                          |                          | P00010 14,767  |
|                          |                          |                          | P00012 32,768  |
|                          |                          |                          | P00013 4,473   |

Contract Number: N62472-89-C-0421 Project Title: Lifesaving Equipment, NAVSTA Philadelphia, PA

Contract Source: NORTHDIV Government Estimate: 527,000

Filename: NODIV5

| Straight Average<br>Method | High/Low Bids<br>Excluded Method | Government Estimate<br>Range Method | Contract Final<br>Price |
|----------------------------|----------------------------------|-------------------------------------|-------------------------|
| Avg Bid: 791,949           | Avg Bid: 764,187                 | Avg Bid: 631,128                    | Tot. Cost: 629,000      |

| Median Bid Not Supported | Median Bid Not Supported | Median Bid Not Supported | Award: 629,000 | Changes: No Changes |
|--------------------------|--------------------------|--------------------------|----------------|---------------------|
| Bids:                    | Bids:                    | Bids:                    |                |                     |

1,182,000  
1,177,710  
784,900  
776,191  
776,191  
697,989  
647,513  
629,000  
624,000  
624,000

Bids: 1,177,710  
784,900  
776,191  
776,191  
697,989  
647,513  
629,000  
624,000

Bids: 647,513  
629,000  
624,000  
624,000

|                  |                  |                      |   |
|------------------|------------------|----------------------|---|
| Contract Number: | N62472-86-C-0073 | Project Title:       | Elec. Metering, Def. Fuel Sup. Dep., Melville, RI |
| Contract Source: | NORTHDIV         | Government Estimate: | 27,000  |
| Filename:        | NODIV6           |                      |   |

|                         |                               |                                  |                      |
|-------------------------|-------------------------------|----------------------------------|----------------------|
| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
| Avg Bid: 37,223         | Avg Bid: 36,000               | Avg Bid: 32,225                  | Tot. Cost: 36,000    |

|                          |                      |                      |          |            |
|--------------------------|----------------------|----------------------|----------|------------|
| Median Bid Not Supported | Median Bid Supported | Median Bid Supported | Award:   | 36,000     |
| Bids:                    | Bids:                | Bids:                | Changes: | No Changes |
| 43,445                   | 36,000               | 32,225               |          |            |
| 36,000                   |                      |                      |          |            |
| 32,225                   |                      |                      |          |            |

|                  |                  |                      |  |
|------------------|------------------|----------------------|--|
| Contract Number: | N62472-88-C-0478 | Project Title:       | Whole Center Repair, NAVMARRESCEN, Worcester, MA |
| Contract Source: | NORTHDIV         | Government Estimate: | 849,369  |
| Filename:        | NODIV7           |                      |  |

|                         |                               |                                  |                      |
|-------------------------|-------------------------------|----------------------------------|----------------------|
| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
| Avg. Bid: 1,020,645     | Avg. Bid: 987,887             | Avg. Bid: 933,467                | Tot. Cost: 920,340   |

|                          |                          |                          |          |         |
|--------------------------|--------------------------|--------------------------|----------|---------|
| Median Bid Not Supported | Median Bid Not Supported | Median Bid Not Supported | Award:   | 879,047 |
| Bids:                    | Bids:                    | Bids:                    | Changes: |         |
| 1,195,000                | 987,887                  | 987,887                  | P00004   | 26,000  |
| 987,887                  | 987,887                  | 879,047                  | P00005   | 19,759  |
| 879,047                  |                          |                          | P00006   | (4,466) |

|                  |                  |                      |   |
|------------------|------------------|----------------------|---|
| Contract Number: | N62472-88-C-0480 | Project Title:       | Repairs/Alts to Admin Spaces, DCASMA, Garden City, NJ |
| Contract Source: | NORTHDIV         | Government Estimate: | 884,121   |
| Filename:        | NODIV8           |                      |   |

| Straight Average Method | High/Low Bids Excluded Method | Government Estimate Range Method | Contract Final Price |
|-------------------------|-------------------------------|----------------------------------|----------------------|
| Avg. Bid: 1,168,101     | Avg. Bid: 1,103,673           | Avg. Bid: 979,874                | Tot. Cost: 897,100   |

|                          |                          |                          |                |
|--------------------------|--------------------------|--------------------------|----------------|
| Median Bid Not Supported | Median Bid Not Supported | Median Bid Not Supported | Award: 827,000 |
| Bids:                    | Bids:                    | Bids:                    | Changes:       |
| 2,540,050                | 1,316,000                | 1,147,300                |                |
| 1,316,000                | 1,285,030                | 1,087,111                | P00002 45,200  |
| 1,285,030                | 1,277,000                | 1,080,000                | P00003 24,900  |
| 1,277,000                | 1,235,000                | 1,075,000                |                |
| 1,235,000                | 1,219,000                | 1,027,000                |                |
| 1,219,000                | 1,195,000                | 985,000                  |                |
| 1,195,000                | 1,160,000                | 864,000                  |                |
| 1,160,000                | 1,147,300                | 859,330                  |                |
| 1,147,300                | 1,087,111                | 847,000                  |                |
| 1,087,111                | 1,080,000                | 827,000                  |                |
| 1,080,000                | 1,075,000                |                          |                |
| 1,075,000                | 1,027,000                |                          |                |
| 1,027,000                | 985,000                  |                          |                |
| 985,000                  | 864,000                  |                          |                |
| 864,000                  | 859,330                  |                          |                |
| 859,330                  | 847,000                  |                          |                |
| 847,000                  | 827,000                  |                          |                |
| 827,000                  |                          |                          |                |